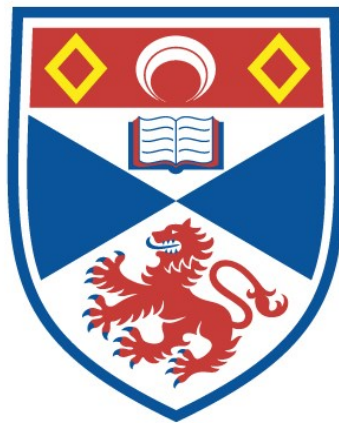


REALISM: A CRITICAL ANALYSIS OF SOME ARGUMENTS BY MICHAEL DUMMETT

Peter Menzies

A Thesis Submitted for the Degree of MPhil
at the
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ABSTRACT

REALISM

A CRITICAL ANALYSIS OF SOME ARGUMENTS BY MICHAEL DUMMETT

CHAPTER ONE

This thesis is a critical analysis of arguments which Michael Dummett has developed against realism. Dummett characterizes realism as the thesis that the meaning of sentences should be analyzed in terms of the notions of truth and falsity which obey the classical principle of bivalence. Before examining Dummett's arguments against realism, I consider the two models Dummett proposes for analyzing the content of assertions and examine his thesis that the realist notion of truth is induced for some sentences by their use as constituents in compound sentences.

CHAPTER TWO

I begin the examination of Dummett's arguments against realism by noting that Dummett allows in his recent work that a Tarskian truth-theory, couched in terms of a non-classical notion of truth, may act within a theory of meaning as the theory of reference yielding an inductive specification of truth-conditions. I then present Dummett's distinction between modest and full-blooded theories of meaning and suggest that the difference between them lies in the fact that the latter type possesses, while the former type lacks, a theory of sense, which Dummett conceives of as a series of correlations between practical abilities and T-sentences. I then consider the manifestation form of the argument against realism and argue that it fails on several counts. I then consider the acquisition form of the argument and point out the disputable assumptions about language-acquisition on which it is based. In the concluding section I question whether a theory of meaning which makes due allowance for idealization in the study of semantic competence should require a theory of sense of the kind Dummett suggests and question

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why the theory of reference should be responsive to the particular practical abilities which Dummett emphasizes.

CHAPTER THREE

In this chapter I complete the discussion of Dummett's arguments against realism and argue that Dummett has no satisfactory line of defence against my principal objection to the manifestation form of the argument against realism. I then present Dummett's distinction between demonstrations and canonical proofs and his general distinction between direct and indirect verifications. I then consider Dummett's attempts to characterize mathematical truth in terms of canonical proof and general truth in terms of direct verification. I conclude by outlining a problem which confronts a verificationist theory of meaning of the kind Dummett espouses and show that there is a flaw in his argument that a verificationist theory of meaning leads to a rejection of classical logic.

CHAPTER FOUR

I begin this chapter by examining Dummett's claim that reductionism is neither necessary nor sufficient for anti-realism. I argue that there is a sense in which reductionism is necessary and claim that there is a way of uniformly characterizing anti-realist positions on a number of subjects in terms of the thesis that a sentence is true in virtue of the evidence existing for it. I then consider Dummett's claim that a realist interpretation of counterfactuals involves asserting the unrestricted validity of the law of conditional excluded middle. I conclude by arguing that the anti-realist cannot acknowledge the defeasibility of evidence for empirically undecidable sentences and at the same time meet a legitimate demand that he explain in terms which do not beg any questions his conception of truth for such sentences.

This thesis is a record of the research I have undertaken during the past four years. I was admitted as a research student under Ordinance General No. 12 in October 1976 and enrolled as a candidate for the M.Phil. degree in April 1977.

I state that I have composed this thesis, that it is a record of work done entirely by myself, and that it has not been accepted in any previous application for a higher degree in the University of St Andrews or elsewhere.

I state that the candidate has fulfilled the conditions of the Resolution and Regulations for the M.Phil. Degree.

FOR MY MOTHER AND FATHER

REALISM

A CRITICAL ANALYSIS OF SOME ARGUMENTS BY MICHAEL DUMMETT

Peter Menzies

Submitted for the M.Phil degree
at St Andrews University



ACKNOWLEDGEMENTS

This thesis has been a long time in the writing. The reasons for this have partly to do with the fact that I have, at the same time as being enrolled as a part-time student at St Andrews, been pursuing graduate studies at Stanford University. Another reason is that it has taken me a long time to piece together the deep and also puzzling arguments which are the subject of the thesis. Although I have been concerned in the thesis to rebut the arguments developed by Michael Dummett, I wish to record here my admiration for the brilliance and originality of his philosophical work.

There are quite a few people I have to thank. I wish to thank Michael Bratman and John Perry for their helpful comments on drafts of this work. I also learnt much from a discussion group of Stanford philosophers which took as its text Dummett's collection of articles Truth and Other Enigmas: of the participants I owe thanks to Davis Baird, Ian Hacking, and Brent Mundy. I owe a special debt to my supervisor Stephen Read, who has given me long and detailed comments on practically all of the many drafts of this thesis and has prodded me into finishing the thesis whenever it looked as though I would not do so. Perhaps he has had to prod me too often.

On a more personal level, I wish to thank my parents, to whom this thesis is dedicated, for the many years of support, both financial and emotional. Lastly, I owe the greatest debt to my wife Edwina, who typed the thesis, some of it several times, but nonetheless managed to retain her sanity and sense of humour through the hectic periods of this last summer.

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ABBREVIATIONS

The following articles have been abbreviated in the text as follows:

'Theory of Meaning I'	'What is a Theory of Meaning?' in S. Guttenplan (ed.) <u>Mind and Language</u> , (Oxford: Oxford University Press, 1975)
'Theory of Meaning II'	'What is a Theory of Meaning? II' in G. Evans and J. McDowell (eds.), <u>Truth and Meaning</u> , (Oxford, Oxford University Press, 1976)
'The Appeal to Use'	'What does the Appeal to Use do for the Theory of Meaning?' in A. Margalit (ed.), <u>Meaning and Use</u> , (Amsterdam: D. Reidel, 1979)

All other articles referred to in the text are included in the collection Truth and Other Enigmas, (London: Duckworth, 1978). Throughout the thesis I refer to the Preface of this collection as 'Preface'. In the text I have abbreviated some of the articles included in the collection as follows:

'Wittgenstein's Philosophy'	'Wittgenstein's Philosophy of Mathematics'
'Philosophical Basis'	'The Philosophical Basis of Intuitionistic Logic'
'Deduction'	'The Justification of Deduction'
'Reality of the Past'	'The Reality of the Past'

I have abbreviated the titles of Dummett's books as follows:

<u>Frege</u>	<u>Frege: The Philosophy of Language</u> , (London: Duckworth, 1973)
<u>Elements</u>	<u>The Elements of Intuitionism</u> , (Oxford: Oxford University Press, 1977)

CHAPTER ONE

TRUTH AND ASSERTIBILITY

§1 Introduction

Though this thesis is concerned with realism, I do not intend to produce a positive account of what realism consists in. My aim is the limited one of critically analyzing some arguments which have been recently proposed against realism. These arguments have their origins, I believe, in Wittgenstein's later philosophy. But I shall not attempt to trace them back to their source. The arguments have a life of their own. Nor shall I examine all the different variants of the arguments to be found in the literature, though from time to time I shall note the similarities and differences in approach between the philosophers who have adopted the arguments.¹ It would take a much longer thesis to carry out exhaustive analysis of the variant anti-realist positions. My aim is simply to examine the arguments which have been developed by Michael Dummett.

Dummett's characterization of realism is apt to strike one as strange at first. Dummett says that realism is a thesis about meaning: it is the thesis that meaning should be analyzed in terms of the notions of truth and falsity which obey the classical principle of bivalence, that is, the principle that every sentence is either true or false. I shall ultimately reject the reference to meaning as being an intrusive feature of the characterization of realism. But in order to determine the cogency of Dummett's arguments against realism I shall temporarily accept his characterization of it.

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1. For other anti-realist tracts see Crispin Wright, 'Truth-Conditions and Criteria', Proceedings of the Aristotelian Society, Suppl. Vol. 1976, pp.217-245; 'Strawson on Anti-Realism', Synthese, 40 (1979), pp.283-299; Wittgenstein on the Foundations of Mathematics (London: Duckworth, 1980), Dag Prawitz, 'Meaning and Proofs: on the Conflict between Classical and Intuitionistic Logic', Theoria, XLIII (1977), pp.2-40.

Opposed to realism is anti-realism. Dummett characterizes anti-realism in a number of ways. In most of his works Dummett identifies anti-realism with the thesis that meaning should be analyzed in terms of verification or warranted assertibility rather than classical truth. This is not to say, however, that anti-realism does without a notion of truth: a suitable non-classical notion of truth is to be defined in terms of verification, warranted assertibility, or whatever notion is taken to analyze meaning. In his more recent works, however, Dummett has allowed that meaning may be analyzed directly in terms of truth.

For example in the Preface to Truth and Other Enigmas he says:

Thus I should now be inclined to say that, under any theory of meaning whatever - at least, any theory of meaning which admits a distinction like that Frege drew between sense and force - we can represent the meaning (sense) of a sentence as given by the condition for it to be true, on some appropriate way of construing 'true': the problem is not whether meaning is to be explained in terms of truth-conditions, but of what notion of truth is admissible. (p.xxii)

This new approach does not involve the rejection of the fundamental importance of the notion of verification, or warranted assertibility. Rather we are to think of the non-classical notion of truth which explains meaning as already defined in terms of verification or warranted assertibility.

In my discussion of anti-realism I alternate between Dummett's old and new characterizations. Which characterization I choose in a chapter depends entirely on which of Dummett's works I am discussing. For example, in those chapters which rely heavily on the article 'What is a Theory of Meaning? II' I use the new characterization, since Dummett's discussion in this article often seems to proceed on the assumption that the core of the theory of meaning should take the form of a truth-theory. To forestall confusion let me state clearly which chapters adopt which characterizations. Chapters One and Three adopt the old characterization and Chapters Two

and Four adopt the new one.

Dummett presents his arguments against realism as ones which apply independently of subject-matter against a number of realist positions. In rebutting Dummett's arguments, I have not considered whether it is possible to modify his arguments so that they hold locally against one kind of realism, even though they do not hold globally against all kinds of realism. I suspect that his arguments might be modified to apply with some force against platonism, that is, realism about mathematics. But since Dummett himself considers that his arguments are globally applicable, I have thought that it is more important to attempt to refute them in their most general form.

Before I consider Dummett's arguments against realism, I wish to discuss two particular matters. In §2 of this chapter I shall discuss Dummett's claim that falsification, rather than verification, should be the central notion in the analysis of meaning; and in §3 I shall discuss Dummett's thesis that the realist notion of truth is induced for some sentences by their use as antecedents of conditionals or as modified by tense-operators.

§2 Falsificationism

Dummett tells us that our intuitive notions of truth and falsity are strongly linked with the notions of an assertion's correctness or incorrectness. (Frege, p.419; 'Theory of Meaning II', p.83) This is evidenced, Dummett says, by our reluctance to apply the predicates 'true' and 'false' to non-assertoric sentences. The simplest and most basic principle governing the use of 'true' and 'false' is that a sentence is true just in case its assertion is correct, and false just in case its assertion is incorrect. The notions of correctness and incorrectness would be the only notions of truth and falsity that we would need if we were only considering the atomic fragment of the language. We can put this in another way: suppose that our understanding of our language was like that of someone whose only knowledge of a certain language consisted in merely being able to use sentences from a phrase-book in appropriate circumstances, without understanding the internal structure of the sentences. If we were in such a position of only being concerned with the content of assertions as a whole, Dummett says, all that would matter to us would be the conditions for the correctness or incorrectness of assertions. (Frege, p.419)

But how are we to understand these notions of an assertion's correctness or incorrectness? Dummett in fact offers us two models for understanding these notions: which we are to accept depends upon whether we take the notion of correctness or that of incorrectness as primary. To say that correctness is primary is to say that the content of an assertion is to be characterized in terms of the conditions in which the assertion is conclusively established as correct. To say that incorrectness is primary is to say that the content is characterized in terms of the conditions in which the assertion would be shown to be incorrect, those conditions which a speaker rules out by means of the assertion. (Preface, p.x1)

In both models, the notions of correctness and incorrectness are dependent on each other: we do not have to make two separate decisions about which circumstances make an assertion correct and which ones make it incorrect. In the first model, in which correctness is primary, we first determine which circumstances make an assertion correct and thereby determine the circumstances which make it incorrect; these latter circumstances are simply those which preclude the occurrence of situations which make the assertion correct. In this respect, assertions are unlike bets. Because there are two consequences attendant on a bet, winning the wager and losing it, we must make two separate decisions: we have to decide the cases in which the bet is won and the cases in which it is lost. Consequently, there may be cases in which the bet is neither won nor lost. Such a case is one in which the bet is made on a condition; if the condition is not fulfilled, the bet is off and nothing is won or lost. ('Truth', p.8)

Dummett argues that assertions are more like commands than bets. ('Truth', pp.8-10) (The similarity between assertions and commands, in fact, favours the model in which incorrectness is the primary notion.) Unlike a bet, a command has only one well-defined type of consequence attendant on it. This is the right that is acquired by the person who gave the command to reproach disobedience. The content of a command is adequately characterized solely in terms of what constitutes disobedience to it; anything which is done which does not count as disobedience constitutes obedience to the command. Similarly, Dummett says, there is just one type of consequence that we normally attribute to an assertion: this consequence is that the speaker is obliged to withdraw the assertion, should it prove to be incorrect. (Frege, pp.417-419) For this reason, one can characterize the content of an assertion solely in terms of the circumstances which would show an assertion to be incorrect, the circumstances which a speaker intends to

exclude by means of his assertion.

In making an assertion, a speaker wishes to be understood as excluding certain possible states of affairs and allowing for the possibility of others: and if his assertion had a determinate content, it must stand determinately in one or other relation to each possible state of affairs. If some state of affairs obtains which he was ruling out, then his assertion was incorrect: if no such state of affairs obtains, it was correct. (Frege, pp.417-418)

Dummett goes on to say, after this passage, that one could characterize the content of an assertion in terms of the conditions under which the assertion is correct. To say that an assertion is correct in this model is tantamount to saying that the speaker had good grounds for making it. But, Dummett says, there is no simple linguistic consequence of a speaker's having good grounds for what he says in the same way as there is a simple consequence of a speaker's making a mistake in what he says. Consequently, assertions are just like commands in this respect: it is the negative notion - disobedience or incorrectness - which is basic.

This argument for the primacy of incorrectness in the description of the linguistic act of assertion is very inconclusive. There are many differences between commands and assertions which are obscured by the claim that both have only one/^{type}of consequence attendant on them. (Dummett half-admits this in a remark in the Postscript to 'Truth'; see comment (6), pp.22-23)

One main difference between them can be made plain by using Strawson's distinction: commands are essentially conventional while assertions are not.²

What does Strawson's distinction amount to? Those linguistic acts which are not essentially conventional are to be characterized by a complex nesting of intentions: the simplest characterization of such an act is that the speaker intends to produce a certain response in his audience and intends

2. 'Intention and Convention in Speech Acts', Logico-Linguistic Papers, (London: Methuen, 1974), pp.149-169

that their response be given as a result of recognizing the speaker's first-order intention. Linguistic acts which are essentially conventional forgo these intentional complexities: in their case conventions or rules of practice, originally introduced against a background of reciprocal intentions, have taken on a life of their own. A conventional act like a command usually takes place within a framework of conventions concerning the status of the commander and the person commanded, their rights and obligations, the due penalties for disobedience etc. Typically, no such conventions surround acts of assertion; they are usually made with the intention of inducing a certain belief in the hearer in such a way that the hearer recognizes this intention.

Distinctions which usually apply to acts of the two kinds Strawson mentions apply to commands and assertions. The matter of intentions is irrelevant to conventional linguistic acts. A command will conform to all the conventions even though the person giving the command does not show any interest in whether it is obeyed or not: he may simply be carrying out the duty of transmitting the orders given by a superior. Indeed, a person giving a command may hope that the command is disobeyed so that he may punish the person in question. An assertion, on the other hand, would be pointless if the person let it be known that he had no intention whatsoever to influence the beliefs or behaviour of others. Again, if a duly authorized order is given, but the hearers do not respond appropriately, there has been a breach of convention. But if an assertion does not get the right response from the audience, there has not necessarily been a breach of convention.

Conventional linguistic acts like commands have conventional consequences, whereas intentional linguistic acts like assertions do not. These conventional consequences, are often to be stated as consisting of someone's acquiring

a right or obligation. For example, as Dummett says, disobedience to a command given by a person in authority confers on that person a right to punish or at least reproach disobedience. The conventional structure of such acts is often linked with the fact that some stake is involved in the outcome of the act: this is clearest in the cases in which some penalty or reward is at issue. The imposition of the penalty or the concession of the reward necessitates determinate standards of proper execution of act and response. But assertions are normally neither penalized nor rewarded; there are no conventional consequences attaching to them. Indeed we do not usually assess them for correctness or incorrectness in the way we usually judge whether a command has been obeyed or disobeyed; for no conventional consequence hinges on the assessment of the correctness or incorrectness of an assertion in the way that punishment depends on the assessment of whether a command has been obeyed or disobeyed. There are some unusual, formal situations, such as giving evidence in the witness-box or writing answers in an examination, where the correctness of assertions becomes important because there are rewards or penalties at stake. Our conception of the correctness or incorrectness of assertions is intimately connected with our grasping that in situations, not always as formal as these, there are certain issues which hang on our getting our assertion right or wrong. But such situations are not the norm.

Dummett himself concedes that assertions do not have conventional consequences in the same way as commands. He says that acts of assertion do have consequences on people's beliefs and behaviour; but these consequences do not come about, as do the consequences attaching to a command, as a result of a recognition of the conventions surrounding the acts. (Frege, p.344; see also pp.301-2; pp.330-1) This concession, however, destroys the grounds for the argument

based on the similarity between commands and assertions, that incorrectness is the primary notion in terms of which the content of an assertion should be characterized. Dummett needs some such argument for his claim that we should describe the content of an assertion in terms of what the speaker intends to rule out by means of the assertion. Yet, on the succeeding pages, after he concedes in effect the lack of any basis for this way of characterizing assertions, he proceeds to put arguments for the treatment of 'truth-value gaps' which rely heavily on this ungrounded claim. (Frege, pp.345-348)

Let us suppose that Dummett is right: assertions are like commands in that the negative notion characterizes the content. Let us also suppose that both are unlike bets in that they do not allow a gap between success and failure. What import do these claims have? Dummett puts these claims to work in his proposal that, if we are following the basic principle for the application of 'true' and 'false' which accords with the division of assertions into correct and incorrect ones, there is no point to saying that certain types of sentences are neither true nor false. For example, Strawson and Frege have said that statements containing names without bearers are neither true nor false. But, Dummett says, when a speaker makes an assertion he rules out the possibility that a name contained therein may not have a referent. For this reason, an assertion which goes awry through lack of a bearer for a name is incorrect. A similar claim to Frege and Strawson's is von Wright's claim that conditionals whose antecedents are false are neither true nor false. In reply to this, Dummett remarks that a speaker in asserting a conditional simply rules out the possibility of the antecedent's being true and the consequent's being false; thus the falsity of the antecedent still leaves the assertion a correct one. ('Truth', pp.11-12; Frege, p.345)

Nonetheless, there is a point, in Dummett's view, to saying that a sentence may be neither true nor false, which relates to the appearance of the sentence as a constituent in more complex sentences. (Frege, pp.420-427; 'Truth', pp.12-14) Dummett says that there is no good reason for supposing that the contribution that a simple sentence will make to the assertibility-condition of a complex one will in turn consist of its own assertibility-condition. Knowledge of the meaning of a sentence, according to Dummett, will involve grasping the content of an assertion of it and also knowing the contribution it makes to determining the content of a complex sentence in which it is a constituent. He refers to the former as knowing the content of the statement and to the latter as knowing its ingredient sense. (Frege, pp.446-447)

Consider negation as a means of forming complex sentences out of simpler ones. The result of negating an atomic sentence is not simply to reverse the conditions for correct assertibility. We have rather, Dummett says, to distinguish two distinct ways in which an assertion of the original sentence might be incorrect. If the names in the asserted sentence all possess bearers but the assertion is incorrect in the straightforward way, we are to say it is false₁. If it is incorrect by reason of a lack of a bearer for a name, we are to say it is false₂. (The case in which Dummett calls a sentence false₁ is just that in which Frege and Strawson say it is false; the case in which Dummett calls a sentence false₂ is just that in which Frege and Strawson say it is neither true nor false.) Negation can now be defined by a three-valued truth-table: negation operates on a sentence to map a true sentence into one that is false₁, a false₁ sentence into a true one, and a false₂ sentence into one that is still false₂. The introduction of the distinction between falsity₁ and falsity₂ enables us to preserve a favoured principle governing negation. This is the principle

that a sentence is false if and only if its negation is true. (Frege, p.422)
1

The use of a many-valued semantics, then, is only called for to preserve the intuitive principles governing negation and other operators. Many-valued logics have been developed with little regard to intuitive interpretation. But an obvious way, says Dummett

to secure an intuitive interpretation for such a many-valued logic, that is, to exhibit it as a genuine semantic structure, is to treat the distinction between designated and undesignated values as corresponding to that between truth and falsity when these notions are understood in terms of the correctness and incorrectness of assertion. (Frege, p.422)

For example, suppose that we have a many-valued semantics with m designated values, D_1, \dots, D_m , and n undesignated ones, U_1, \dots, U_n ; here either m or n may be 1, but we assume not both. Then to know the content of a statement - the conditions for its correct assertion - it is necessary only to know the conditions for it to have some designated value. To know the ingredient sense of a statement, on the other hand, we have to know the various conditions for it to have each of the $m + n$ specific truth-values. This is because the content of a complex statement is not determined uniformly by the contents of its constituents.

Dummett puts the point behind this involved discussion quite simply in his 'Preface'. He says that the notion of presupposition, which Strawson introduced to account for statements' being neither true nor false is not as fundamental as the notion of assertion. ('Preface', p.xv) Dummett claims that if we were to be introduced to a language without knowing the internal structure of any sentence of the language, or of any other language, it would be intelligible to us to be told that a speaker asserted that some condition held. But it would be unintelligible to us to be told the speaker asserted a certain condition held, presupposing that a certain other prior condition obtained. The notion of presupposition would make

sense only if we understood how an account of the internal structure of sentences calls for a many-valued semantics.

To put the matter in this way highlights the implausibility of Dummett's claim. Presupposition is surely intelligible without the explanation of the internal structure of sentences. Presuppositions are generated through the observance of conversational maxims of the kind Grice has described.³ The maxims which enjoin one to be as informative as possible forbid one to use in an assertion a name which one believes lacks a bearer: to do so would be to supply misleading information to one's audience. An understanding of how presuppositions are generated does not depend upon a grasp of the internal structure of a sentence any more than does an understanding of the relevance of the sentence in a particular context.

Indeed there is nothing distinctively linguistic about the processes by which presuppositions are created. Grice's conversational maxims are merely instances of certain rational modes of conduct individuals adopt to advance their mutual interests. One interest any speaker has is to acquire information from others. It is rational for me, having this interest, to obey Grice's maxims concerning informative discourse. I will also expect every other speaker with the same interest to do the same. Moreover, I will expect other speakers to expect me to obey the maxims. Knowing that it is best for me in the long run to be seen to conform to the practice, I will only assert a sentence when I think that my information is accurate. Knowing

3. 'Logic and Conversation', in D. Davidson and G. Harman (eds.) The Logic of Grammar, (Belmont: Dickenson, 1975), pp.

that I am conforming to the practice, other speakers take my assertions to be made in the appropriate circumstances. One of these circumstances is that the speaker believes that all the names he uses in his assertions have bearers.

Now the same structure of reciprocal expectations is present in non-linguistic activities such as warning. For example, concerned for my own safety, I toot my horn when I drive around a sharp mountain bend. I expect others to do the same and also expect that they will expect me to do so as well. Knowing that it is best for me to heed this practice, I toot my horn only under appropriate circumstances. Knowing that I am following the practice, other motorists take my toots to be made in just the appropriate circumstances.

What happens when an assertion misfires through the failure of one of its presuppositions? The simplest thing to say in such circumstances is that the utterance does not formally constitute an act of assertion. It is consonant with this intuition to say the assertion is neither true nor false. It is neither true nor false, not in the sense that it has a third truth-value, but in the sense that it lacks a truth-value altogether. This construal has the virtue that it preserves the favoured principle of negation which Dummett mentions: a negation still maps a true sentence into a false one and a false one into a true one. We need not consider the case in which the assertion is neither true nor false. For this is not a third possibility; rather, it is a case which falls outside the bounds of a semantic account of negation.

More could be said on this matter of presupposition. But my purpose in this section is mostly to expound some common themes of Dummett's work and

to clarify some issues which arise from this exposition. One matter which needs to be clarified is Dummett's wavering between the two models of the content of an assertion. This indecision is most marked in the early essay 'Truth'. (Dummett admits as much in 'Preface', p.x1) In the first three-quarters of the article, Dummett presents the argument for taking incorrectness as primary and considers the advantages of this proposal. But in the last quarter of the article Dummett relies upon a notion of assertion in which correctness assumes the prominent role to reject the law of excluded middle. He considers the case of Jones, now dead, who never encountered danger in his life. Dummett asks whether we should accept the logical validity of the sentence 'Either Jones was brave or Jones was not brave'. He argues that we should not because in the circumstances envisaged there is nothing which would count as evidence for asserting either disjunct. He goes on to make the general remark:

In order, then, to decide whether a realist account of truth can be given for statements of some particular kind, we have to ask whether for such a statement P it must be the case that if we knew sufficiently many facts of the kind we normally treat as justifying us in asserting P, we should be in a position either to assert P or to assert 'Not P'. ('Truth', p.16)

This question indicates clearly, I think, that Dummett is presupposing the model in which correctness rather than incorrectness plays the prominent role. In the other model, in which primacy is thrust on incorrectness, no reference need be made to the grounds on which an assertion is made; so long as nothing obtains which is excluded by the assertion, it is correct whatever the grounds on which it is made. But in the model that is operative in the passage just quoted, grounds and evidence are all important: we can only assert a disjunction, Dummett says, provided we have sufficient grounds for one disjunct or the other. In his later work, Dummett characterizes a correct assertion, so construed under the 'correctness model', in terms of the notion of verification. A correct assertion is just one which has

been or is capable of being verified.

It is remarkable that Dummett should shift so casually from one model to another. Of course, his reliance on the model in which correctness is primary is to ^{be} explained by his desire to transfer the intuitionistic account of the meaning of the logical constants in mathematics to an account of their meaning in ordinary language. The standard intuitionistic account of formulas containing the logical constants is in terms of the provability of the constituent formulas. When the notion of provability is translated into a notion more broadly applicable, it becomes something like warranted assertibility or verifiability. One rough semantics for the logical constants in terms of verifiability is as follows:

- (1) $\neg A$ is verifiable if and only if there is a method of verifying that no verification of A is possible.
- (2) $A \vee B$ is verifiable if and only if there is a method of verifying A or a method of verifying B.
- (3) $A \& B$ is verifiable if and only if there is a method of verifying A and a method of verifying B.
- (4) $A \rightarrow B$ is verifiable if and only if any method of verifying A can be converted into a method of verifying B.
- (5) $\exists x A(x)$ is verifiable if and only if there is a method of verifying some instance A(a).
- (6) $\forall x A(x)$ is verifiable if and only if there is a method of verifying A(x) irrespective of the value of x.

Of course, when disjunction is understood in this way, the validity of the law of the excluded middle is called into question: for there is no guarantee that we will be able to discover, for any A whatsoever, either a method of verifying A or a method of verifying that no verification of A is possible.

Now contrast this semantics with that we might expect in the other model in which incorrectness is the leading concept. In this model, the assertibility-condition for a logically-complex formula is still explained

in terms of the assertibility-conditions of the constituent formulas. But the notion of (correct) assertibility is interpreted differently; now the assertibility-condition of a formula, complex or simple, is explained in terms of what is excluded by an assertion of the formula, or, in other words, what would falsify an assertion of the formula. A semantics for the logical constants in terms of falsifiability will be very similar to that given above, except that the condition of falsification for a formula containing a constant will be expressed in terms of the dual constant: for example, $\underline{A} \vee \underline{B}$ is falsifiable if and only if there is a method of falsifying \underline{A} and a method of falsifying \underline{B} ; or, $\forall x \underline{A}(x)$ is falsifiable if and only if there is a method of falsifying some instance $\underline{A}(a)$

The formulas valid in the falsificationist semantics, however, will differ considerably from those valid in the verificationist semantics. For example, the law of excluded middle is valid in the falsificationist semantics. It is easy to see why, even with only the barest sketch of the semantics. One cannot falsify $\underline{A} \vee \neg \underline{A}$. Suppose one could; this would involve falsifying \underline{A} and $\neg \underline{A}$. But in this semantics, if one can falsify \underline{A} one can assert $\neg \underline{A}$. Thus, if one can falsify both \underline{A} and $\neg \underline{A}$, one can assert both $\neg \underline{A}$ and $\neg \neg \underline{A}$. Since $\neg \underline{A} \ \& \ \neg \neg \underline{A}$ cannot be valid, it is impossible to falsify $\underline{A} \vee \neg \underline{A}$.

This fact is all the more embarrassing for Dummett. The greatest part of the article 'Truth' is devoted to arguing for a conception of assertion which gives rise to a semantics which validates the law of the excluded middle. In the last part of the article, he adopts, without notice, a new conception of assertion in which the law is no longer valid. This tension between two central themes of his work, no doubt, led to his change of mind in later work about the target of his anti-realist arguments. He says in the 'Preface' that he was mistaken in taking, as a touchstone for realism,

the acceptance of the law of the excluded middle, rather than the principle of bivalence. ('Preface', p.xxx) Earlier in the 'Preface' Dummett distinguishes certain semantic principles from logical laws. (P.xix)

(7) Law of Excluded Middle : $\underline{A} \vee \neg \underline{A}$

(8) Law of excluded third: $\neg \neg (\underline{A} \vee \neg \underline{A})$

(9) Law of contradiction: $\neg (\underline{A} \& \neg \underline{A})$

(10) Law of double negation: $\neg \neg \underline{A} \rightarrow \underline{A}$

(11) Principle of bivalence: every statement is either true or false.

(12) Principle of tertium non datur: no statement is neither true nor false.

(13) Principle of exclusion: no statement is both true and false.

(14) Principle of stability: every statement that is not false is true.

The importance of distinguishing the semantic principles from the logical laws, Dummett says, lies in the fact that acceptance of a semantic principle normally entails acceptance of the corresponding logical law, but the converse does not hold. He says his real intention in 'Truth' was to defend the principle of tertium non datur against the counter-examples brought by Strawson but also to attack the principle of bivalence. If Dummett were to say, as he in fact did in his earlier works, that he wants to argue for the law of the excluded third and against the law of the excluded middle, then we could show that he could only do so on an equivocation with the terms 'correct assertion' and 'incorrect assertion'. But by redirecting his aim at the principle of bivalence, instead of the law of the excluded middle, Dummett escapes from any charge of equivocation. The principle of bivalence is not operative in either the verificationist or falsificationist semantics. Even though the falsificationist semantics validates the law of the excluded middle it does not admit a two-valued interpretation: for the falsificationist logic is the mirror image of verificationist or

intuitionistic logic. ('Theory of Meaning II', p.126)

Where has the discussion of this section left us? I have been concerned to argue that it is a mistake to accept Dummett's claim, based on an alleged similarity between commands and assertions, that the content of an assertion should be characterized in terms of the conditions in which it would be incorrect. Any advantage this manoeuvre gives him in the treatment of 'truth-value gaps' is based on a misunderstanding of the way in which presuppositions arise. I have also argued that Dummett's argument against realism as identified with the validity of the law of excluded middle is vitiated by his wavering between the two models of the content of assertion; but that his recharacterization of realism in his later works in terms of the principle of bivalence instead of the law of the excluded middle enables him to escape the immediate problem caused by his wavering between the two models. In future I shall assume that, if there is just one appropriate model, it is the verificationist model. Ignoring the falsificationist model will not affect the course of the argument: for Dummett couches all his anti-realist arguments in terms of verification.

§3 The Distillation of Truth from Assertibility

Our concept of truth, Dummett tells us, is linked most intimately with our ability to discern, among the class of assertions, those which are correct and those which are incorrect. The way in which we are to understand the notions of correct and incorrect assertion depends on which notion we take to be the primary one. Following the decision of the last section, let us take the notion of correct assertion to be primary. A correct assertion, then, is one which the community has sufficient evidence to verify. Dummett's equation of truth with correct assertibility, however, clashes with an unreflective distinction we make between the case in which an assertion is

correct and the case in which it is true. The distinction cuts both ways: there are numerous occasions in which a community of speakers may have evidence to justify an assertion and discover subsequently the assertion to be false. Conversely, there are many occasions on which a true assertion may, on the face of the evidence, appear incorrect.

But where in Dummett's schema of things is there room for this distinction? Dummett places great weight on the character of what is learned in acquiring a mastery of language. He sketches the following rough picture of the process by which we master the linguistic activity of making assertions. (Frege, p.449) We learn to differentiate between criticisms of assertions on grounds of politeness, relevancy, discretion, etc and criticisms on grounds of correctness. The latter type of criticism relates to the discrepancy between what is conveyed by a speaker's assertion and the grounds he has for making it. In learning what a correct assertion is, a speaker learns the practice of seeking and giving the grounds on which an assertion is made. There appears, at first sight, to be no space in this picture for the notion of truth which transcends the practices, passed on from one speaker to another, of seeking and giving evidential justifications.

Dummett, however, does provide an explanation of how the distinction arises.

We should ordinarily allow, however, that such an assertion, although unjustified, might be true, or, although justified, false. If future-tense sentences could not come within the scope of sentential operators, there would be no place for such a distinction between justification and truth. We should, for example, have no basis for distinguishing between an expression of intention and a statement of intention, that is, between the forms 'I am going to marry Jane' and 'I intend to marry Jane', which differ not in respect of the circumstances in which their utterance is justified, but solely in their truth-conditions. This distinction has to do solely with the different behaviour of the two forms as constituents of more complex sentences, and, particularly, as antecedents of conditionals. (Frege, p.450; see also Frege, p.350)

The point seems to be that sentences (15) and (16) have the same assertibility-conditions.

(15) I am going to marry Jane.

(16) I intend to marry Jane.

We are given to understand that both are assertible just in case the speaker does sincerely intend to marry. But (15) and (16) have different truth-conditions: (15) is true just in case, when the time comes, the speaker does in fact marry Jane; (16) is true, on the other hand, just in case at the present time the speaker really does intend to marry Jane. The difference in their truth-conditions, Dummett claims, becomes evident when they are made antecedents of conditionals like (17) and (18):

(17) If I am going to marry Jane, then I will no longer be a bachelor.

(18) If I intend to marry Jane, then I will no longer be a bachelor.

Now (17) and (18) have different assertibility-conditions. The conditional, in Dummett's view, has assertibility-conditions which cannot be explicated in terms of the assertibility-conditions of its constituent sentences.

The antecedent of the conditional must be true, rather than just correctly assertible. This is so for the following reason:

The manner in which we are intuitively inclined to apply the predicate 'true' is often closely guided by the behaviour of the relevant sentence when it occurs as the antecedent of a conditional. Thus, for example, we barely have in natural language any use for conditionals whose antecedents are themselves conditionals: and this is surely connected with our hesitancy in applying the word 'true' to a conditional at all. (Frege, p.349)

Dummett explores this suggested mode of truth-inducement with a different example.

Again, we should have no need of the distinction between the genuine future tense, yielding a statement true or false according to what later happens, and the future-tense expressing present tendencies, as occurring in, e.g. 'The wedding announced between ... and ... will not now take place'. The difference between the two uses of the future-tense is registered only in compound sentences, such as a conditional whose antecedent is a future-tense sentence, or one involving a compound tense like 'was going to...'. (For present purposes, at least, tenses are to be construed as a kind of sentential operator, so that the sentence 'The wedding was going to take place' counts as a complex sentence having 'The wedding is going to take place' as a constituent). (Frege, p.450)

In the chapter 'Thoughts' of Frege, Dummett amplifies on the comment that the use of compound tenses gives us a notion of truth for future-tense sentences which goes beyond correct assertibility. (Frege, pp.390-400) He provides a number of alternative semantics for tensed sentences to bring out this point. The basic structure of each semantics is a branching tree structure, the branches in which represent the various total courses of world history which were possible at the moment of creation. Each node represents the state-of-affairs, under a given total course of world history, on a particular day. Following Prior, Dummett represents a tensed sentence as consisting of a token-reflexive temporal operator and a sentence-radical. He supposes that the unit of time is a day and represents the future temporal operator 'It will be the case in n days' time that...' as ' F_n ' and the past temporal operator 'It was the case n days ago that...' as ' P_n '. In each of the alternative semantics, Dummett makes the simplifying assumption that every sentence-radical is determinately true or false at at each given node. Some relevant clauses from the 'classical' semantics are as follows:

- (19) $F_n A$ is true (false) at time t under a total course C of world history if and only if A is true (false) at $t + n$ under C .
- (20) $P_n A$ is true (false) at time t under C if and only if A is true (false) at $t - n$ under C .

Dummett then introduces two new notions. The first is that of the coincidence of two courses of world history C and C' up to a time t . He defines ' C coincides with C' up to t ' to mean that, for every radical A and every $t' \leq t$, A is true at t' under C if and only if A is true at t' under C' . He then stipulates that, for any sentence A , A is assertible at t under C if and only if, for every C' which coincides with C up to t , A is true at t under C' . If we take this definition of assertibility as a definition of truth, we obtain a 'non-classical' semantics. The relevant clauses of this semantics are as follows:

- (21) FnA is true at t under C if and only if, for every C' which coincides with C up to t , A is true at $t + n$ under C' .
- (22) PnA is true at t under C if and only if, for every C' which coincides with C up to t , A is true at $t - n$ under C' .

This semantics differs from the 'classical' semantics in a number of ways: in the 'classical' semantics FnA is true at t under C whenever A is true at $t + n$ under C . But this is not the case with the 'non-classical' semantics: for FnA to be true at t under C , A would have to be true at $t + n$ under every C' which coincides with C up to t . This difference may be put in another way: in the 'non-classical' semantics, in contrast to the 'classical' semantics, A may be true at t under C and yet FnA false at $t - n$ under C . As Dummett points out, a consequence of this fact is that A and $\text{Pn}(\text{FnA})$ are not equivalent in the 'non-classical' semantics. This happens when A is true at t under C but $\text{Pn}(\text{FnA})$ false, since, for some C' coinciding with C up to $t - n$, but not up to t , A is false at t under C' .

Dummett's point about compound tenses inducing a realist notion of truth finer than that of assertibility must be this: we learn that sentences of the form A and $\text{Pn}(\text{FnA})$, given a time t , imply each other; that is, we learn that sentences like 'It is the case now that an election is taking place' and 'It was the case 3 years ago that an election would take place now', uttered at the same time, share the same truth-condition. It is through learning their equivalence that we grasp the fact that if a future-tense sentence had been uttered in the past, it would have been true at that time just in case the future event did in fact take place at a later time. By grasping this fact we gain an understanding of the distinction between the use of future-tense sentences to report present tendencies and the use of them to make a statement genuinely about the future, thereby grasping

the distinction between the condition for the correct assertion of a future-tense sentence and the condition for its truth.

Robert Brandom in 'Truth and Assertibility'⁴ elaborates on Dummett's first example concerning the difference between the announcement and the fulfilment of an intention. He disputes Dummett's suggestion that (15) and (16) have the same assertibility-condition. Brandom suggests that a speaker might be justified in believing that he will marry Jane on the basis of some inductive inference or because of a religious prophecy with great authority in his community, without its being appropriate to say that he intends to do what he believes he will do. Following a suggestion of David Lewis',⁵ he replaces (16) by (23).

(23) I foresee that I will marry Jane.

But I think that one can argue that sentences (15) and (23) differ in assertibility-conditions too. In some circumstances, the evaluation of an assertion of a sentence like (15) requires a lapse of time. Suppose the speaker has an irascible uncle who has vowed to cut the speaker from his will on the very day that he marries Jane. The uncle dismisses his nephew's assertion that he will marry Jane as impetuous. He will only accept the assertion as correct when the marriage actually takes place. If, as in this example, we can build a delay in evaluation into the assertibilitycondition of a future-tense sentence, sentences (15) and (23) will differ in their conditions for correct assertion.

Suppose for a moment that all assertions of future-tense sentences require a lapse of time before evaluation as correct or incorrect. Let me say now

4. The Journal of Philosophy, LXXIII, (1976), pp.137-149

5. 'Truth and Assertibility', p.140

that in the end I shall modify this assumption. But if we put this point in the strongest possible form to begin with, we can see more clearly the exact way in which the distinction between truth and assertibility achieves its intuitive clarity. This supposition amounts to assuming that there is no distinction between the assertibility-conditions of future-tense sentences and their truth-conditions. An assertion of a future-tense sentence is correct, on this view, just in case the future event it describes does in fact take place at a subsequent time. Given this supposition, Dummett's claim that the use of future-tense sentences as antecedents of conditionals induces a realist notion of truth will be out of place. We do not need to use conditionals to discern the difference in truth-conditions between (15) and (23): the difference is discernible in the way they are used on their own in assertions.

We can incorporate this supposition into the semantic systems which Dummett develops for tensed sentences. In these semantic systems the relativization of truth-value to a time plays a double role: it relates both to the time of utterance and to the time at which the ascription of truth-value is being made. We can separate these notions by relativizing the truth of a tensed sentence to two times, the time of utterance and the time of assessment. The relevant clauses of the modified 'non-classical' semantics are (Frege, pp.394-395)

- (24) \underline{A} , uttered at t , is true at t' under C if and only if, for every C' which coincides with C up to t' , \underline{A} is true at t under C' .
- (25) $\underline{F_n A}$, uttered at t , is true at t' under C if and only if, for every C' which coincides with C up to t' , \underline{A} is true at $t + n$ under C' .
- (26) $\underline{P_n A}$, uttered at t , is true at t' under C if and only if, for every C' which coincides with C up to t' , \underline{A} is true at $t - n$ under C' .

As Dummett remarks, the equivalence of \underline{A} and $\underline{P_n(F_n A)}$ is now restored: that is, for every t , t' and C , $\underline{P_n(F_n A)}$, uttered at t , is true at t' under C if

and only if A, uttered at t , is true at t' under C . The equivalence failed before just because there was some C' , coinciding with C up to $t - n$, but not up to t and A was true at $t - n$ but false at t under C' . But this situation cannot arise now since the courses of world history must coincide up to the time of assessment. Suppose we are assessing A and $P_n(F_nA)$ now, although both were uttered two days ago. By (25) and (26) we know that $P_n(F_nA)$ is true now in the actual course of world history just in case, for every C' which coincides with the actual course of world history up to now, if A had been uttered, it would have been true two days ago in C' . These are exactly the truth-conditions for A, uttered and assessed in the same circumstances as $P_n(F_nA)$.

To conflate truth with assertibility for future-tense statements in this way does fly directly in the face of a strong intuition that there is a distinction to be drawn. This intuition comes out most strongly in what Putnam, taking up a suggestion of Dummett's, calls 'the idealistic fallacy argument'.⁶ No matter how we construe correct assertibility, whether it be Dummett's construal or Dewey's, Putnam says, correct assertibility cannot amount to truth. For we may legitimately say that a statement may be assertible and still be false. This form of argument may be employed in the case of future-tense statements. Consider the future-tense sentence 'A city will never be built here'. (The example is from 'Truth', p.16) Suppose we have an oracle that answers every question of the kind, 'Will there be a city here in 1990?', 'In 2000?' and that every time we ask it such a question with a specific date it answers 'No'. If truth just consisted in our being in possession of a given amount of information, then we would be compelled to say that 'A city will never be built here' is true under

6. 'Reference and Understanding', in A. Margalit (ed.), Meaning and Use (Dordrecht: D. Reidel) 1979, pp.208-210

the circumstances imagined. But we do not feel so compelled. We could get the answer 'No' for a million different dates and yet not be assured that the sentence was true. For there might be some date we had not tried which was such that a city was built at that time.

Our belief that such a future-tense statement might be assertible yet false stems from a deeper belief. This is the belief that the world is determinate, even though we have limited epistemic access to it in some cases. Remote regions of space-time have determinate properties but we may be incapacitated from knowing what those properties are by the limitations imposed on us by our position in space-time and our physiological make-up. In the example above, the truth of the statement depends upon what happens at an infinite number of times, although by reason of our limitations, we can only judge the correctness of the statement on the basis of a finite amount of evidence. The belief that the world is determinate in ways which escape our limited epistemic abilities is the heart of realism. The example of the future-tense statement does nothing to justify this belief, but it does throw it into high relief.

The earlier passages which entertained the equivalence of the notions of truth and assertibility were not without point. The argument in the last paragraphs showed that we do draw a distinction between the assertibility-condition of a sentence and its truth-condition, but it did not show where we draw this distinction. Depending on the context, we may in fact allow that the notions coincide for certain types of future-tense sentences. This is most obvious in cases in which considerable importance attaches to making the right prediction and in which there is just a short interval between utterance and outcome. In such cases, we may say that an assertion of future-tense sentence is correct just in case it is true. For example,

consider a group of scientists conducting a crucial experiment to test a certain prediction; they wait until after the experiment to decide whether the prediction is correct or not.

The notion of correct assertibility is radically context-dependent. Who is assessing the assertion as correct? What are their interests in the matter? How strict are their canons of evidential support? These are all questions which play some part in deciding whether a statement is correctly assertible. When, however, we are presented with sentences like (15), (16), and (23), we are given no context to work with. It is difficult in such circumstances to judge whether the pairs (15)-(16) and (15)-(23) have the same assertibility-conditions. By putting them in particular contexts, as Brandom did with the pair (15)-(16) and as I did with the pair (15)-(23), we can judge the matter more clearly. Without such contexts it is indeterminate whether the pairs have the same assertibility-conditions.

Dummett's thesis about truth-inducing sentential-contexts trades on this indeterminacy. By putting sentences (15) and (16) in sentential-contexts, Dummett wishes to say that we obtain a clear resolution of their truth-conditions. But, in fact, by setting them in a context, albeit a minimally informative one, what we obtain is a resolution of their assertibility-conditions. For example, sentence (15) may be interpreted so that its assertion is correct just in case the speaker does have a certain intention, namely, the intention to marry, or it may be interpreted so that its assertion is correct just in case the speaker fulfils this intention. The appearance of (15) in (17) effectively resolves this unclarity in favour of the latter alternative.

But this resolution has nothing to do with the appearance of (15) as antecedent;

rather it has all to do with the consequent 'I will no longer be a bachelor'. As it appears in the conditional, this sentence makes implicit reference to a point of time at which the speaker will cease to be a bachelor and become married. By focussing attention on this point of time, the consequent forces the second interpretation of the antecedent's assertibility-condition. The fact that this has nothing to do with the appearance of (15) as antecedent of a conditional can be brought out by considering the following conditional: (27) If I am going to marry Jane, I must make a formal announcement. The consequent of this conditional suggests that the first interpretation of the assertibility-condition of (15) is appropriate in this case: what is at issue here is the speaker's having a certain intention, not whether the intention is fulfilled. The use of the conditional is strictly irrelevant to the issue. What is important is that a context is provided which determines that one or other kind of assertibility-condition is appropriate. When a conditional succeeds in doing this, it is due to the additional information its consequent bears. There are no consequences to be drawn about realism or truth from examining the use of compound sentences and, in particular, the use of the conditional.

In previous paragraphs I have hedged a little on the exact point at which the distinction between truth and correct assertibility comes into force for future-tense sentences. This is because I do not believe that there is one point at which the distinction comes into force in all contexts.

In some contexts, the condition for the correct assertion of a future-tense sentence will be just the same as the condition for its truth, and in other contexts it will be different. I do not believe that the distinction between

7. I must make it clear that the conditionals (17) and (18) are not Dummett's but Brandom's.

truth and correct assertibility emerges clearly in our everyday use of future-tense sentences. Rather, I believe, the distinction emerges most clearly in those extreme philosophical examples like that of 'A city will never be built here' which, from the realist's point of view, highlight the contrast between our limited epistemic access to the world and its unlimited determinacy. I add these remarks, without further development, to make my position clear. What is important at this point are the following claims I have argued for: we do in fact draw a distinction between truth and assertibility for future-tense sentences and this distinction does not arise through the use of compound sentences, as Dummett suggests.

Dummett seems to claim only for future-tense sentences that their use as constituents in compound sentences can induce of a notion of truth finer grained than warranted assertibility. If Dummett were to make the claim for other types of sentences, this would be significant for the discussion of realism. For Dummett says that the notion of truth that can be so induced obeys the principle of bivalence. (Frege, p.450) Can the use of past-tense sentences or mathematical sentences as constituents in compound sentences induce a realist notion of truth for these sentences? There is one passage in which Dummett considers this question. After making his claim for future-tense sentences he says:

This particular example raises no especial difficulty, for a conception of meaning as founded on verification and falsification rather than on truth and falsity, for there is no reason why the the verification and falsification of a sentence should not require a lapse of time. But it necessarily raises the question whether, in other cases, we may not acquire a realist conception of truth for sentences of given kinds by learning the use of compound sentences in which they are constituents. A case that does raise considerable difficulties for a verificationist view is that of past-tense sentences. Whereas there is no absurdity in the idea of verifying an assertion after it has been made, a verification cannot precede the making of the assertion verified. A previous observation can serve as conclusively establishing the truth of a past-tense sentence only in so far as it is known to have been made, e.g. remembered; so, from a verificationist point of view, it is not the past observation itself, but the present memory (or other trace)

of its having been made which constitutes the verification of the assertion. This does not mean that the memory has to be treated as a datum from which the previous observation is to be inferred: but it does place the past-tense sentence in the position of an undecidable one, one for which we may now have, or later find, a verification or a falsification, but for which we possess no effective method of obtaining one or the other. (Frege, p.469)

From this passage it appears that the use of a sentence as the antecedent of a conditional, or as modified by a tense-operator, can induce a realist notion of truth only for future-tense sentences but not for past-tense sentences. But if the use of a type of sentence as a constituent in compound sentences really can induce a realist notion of truth for that type of sentence, it should do this for every type of sentence: if it works for future-tense sentences, it should work for all types of sentences. (This suggests that Dummett must have other reasons, which have nothing to do with the behaviour of sentences as constituents in compound sentences, for allowing a realist notion of truth to apply to future-tense sentences but not to past-tense sentences.) The passage confirms my conclusion that Dummett's thesis about the truth-inducing capacity of certain sentential-contexts is not a real explanation of the realist notion of truth. This notion of truth, which the realist contrasts with warranted assertibility, has its origins, as suggested earlier, in a metaphysical conception of the world as being determinate in ways which may escape our limited epistemic abilities.

CHAPTER TWO

CLASSICAL TRUTH AND FALSITY IN THE THEORY OF MEANING

Dummett has proposed a bold identification of realism with a certain thesis about the form of a theory of meaning. He has argued against realism on the grounds that the kind of theory of meaning it involves is unsatisfactory. In this chapter and the next I wish to consider whether Dummett's critical arguments concerning realism are good ones.

In §1 I shall argue that Dummett identifies realism with the thesis that theory of meaning must be given in terms of notions of truth and falsity which obey the classical principle of bivalence. In §2 I shall examine Dummett's conception of the form which the theory of meaning should take. In §3 I shall consider Dummett's argument that the form which the theory of meaning should take forbids the theory from being given in terms of classical truth and falsity. In §4 I shall examine the assumptions about language-acquisition which Dummett makes in arguing against realism and in §5 I shall conclude the discussion by highlighting and calling in question some even more general assumptions of Dummett's argument.

§1 A Truth-Theory as a Theory of Meaning

The equivalence principle turns up many times in Dummett's discussion of the form which a theory of meaning should take. It is the principle that, for every sentence A, A is equivalent to 'It is true that A' or to 'S is true', where S is the structural-descriptive name of A.

(Frege, pp.444-445). Various philosophers, apart from Dummett, have been interested in the principle. Frege held that the predicate 'true' could not be defined by any other predicate but was subject to the equivalence principle.¹ Wittgenstein, as well as Ramsey, considered that the stipulation of the principle gave a completely exhaustive explanation of the concept of truth.² For Tarski, the principle was not the object of outright stipulation: rather, the derivability of the principle for every sentence of the object-language was a condition of material adequacy on a definition of truth framed in a metalanguage that was an expansion of the object-language.³

Dummett says that theories of truth have usually had two main objectives. One is to provide an account of the way in which the predicate 'true' is used in a language. (Frege, pp.455-456) A theory of truth, he says, which takes the form of the stipulation that every instance of the equivalence principle should hold accomplishes this objective. But the other objective is much more far-reaching than an account of the use of the word 'true' within the language: it is the more ambitious aim of employing the notion of truth to give a theory of meaning. A theory of meaning of this kind will, in Dummett's view, provide an account of how the meaning of a sentence is built up from its component words in terms of the contribution each word makes to the

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1. G. Frege, 'Thoughts', in P.T. Geach (ed), Logical Investigations (Oxford: Basil Blackwell, 1977), p.4
 2. L. Wittgenstein, Remarks on the Foundations of Mathematics, (Cambridge: M.I.T. Press, 1975), Appendix I, Part I
 3. A. Tarski, 'The Concept of Truth in Formalized Languages', in Logic, Semantics, Metamathematics, (Oxford: Clarendon Press, 1956)

truth-condition of the sentence as a whole; all other features of the use of the sentence will be derived from its truth-condition. Dummett says that the notions of truth given by the two types of theory may diverge. Dummett says, though without any argument, that there can be no a priori assumption that the use that is made within the language of the predicates 'true' and 'false' is precisely that which is required when truth and falsity are taken as the central notions in a theory of meaning. (Frege, pp.457-458)

In the article 'Truth' Dummett proposed an argument, which he thought was to be found in Wittgenstein⁴, to the effect that a redundancy theory of truth, is incompatible with a theory of meaning in terms of truth. ('Truth', p.7) The redundancy theory of truth is just the theory propounded by Wittgenstein and Ramsey: the sole explanation that can be given of the notion of truth consists precisely in the stipulation of every instance of the equivalence principle. A more elaborate form of the redundancy theory, actually held by Tarski, is that an inductive specification of the truth-condition of every sentence of a language, which meets the material adequacy condition mentioned earlier, supplies a complete explication of the concept of truth for that language. What is problematic about the incompatibility which Dummett saw is that some philosophers have viewed a Tarskian truth-theory as providing the frame for a theory of meaning: the inductive clauses of the Tarskian truth-definition for a language

4. Tractatus Logico-Philosophicus, (London: Routledge and Kegan Paul, 1971), 4.063

may be seen as exhibiting the meanings of the sentences of the language,⁵
as they are compounded from the meanings of their constituents.

The incompatibility which Dummett saw in 'Truth' arose, however, from making the seemingly unwarranted assumption that the redundancy theory of truth was to be interpreted as saying the only permissible theory of truth is one that is concerned with the way in which 'true' is used in the language, and not with the more ambitious task of providing a theory of meaning. Given the assumption that this is the content of the redundancy theory, it is small surprise that it should be seen to be incompatible with a theory which uses truth to analyze meaning. (see Frege pp.458-459 for an explicit formulation of this assumption; also 'Preface', pp.vi-vii)

In the article 'Truth', Dummett had taken the incompatibility, generated by his construal of the redundancy theory, to show that a theory of meaning in terms of truth is mistaken.

This substitution does not of course involve dropping the words 'true' and 'false', since for most ordinary contexts the account of these words embodied in the laws 'It is true that p if and only if p' and 'It is false that p if and only not p' is quite sufficient: but it means facing the consequences of admitting that this is the whole explanation of the sense of these words, and this involves dethroning truth and falsity from their central place in philosophy and in particular the theory of meaning. ('Truth', p.19)

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5. D. Davidson, 'Truth and Meaning', *Synthese*, VII (1967), pp.304-323; 'In Defence of Convention T' in H. Leblanc (ed.), *Truth Syntax and Modality*, (Amsterdam: North-Holland, 1973), pp.76-85; 'Semantics for Natural Languages', in G. Harman (ed.), *On Noam Chomsky*, (New York: Anchor Books, 1974), pp.242-252; 'Radical Interpretation', *Dialéctica*, 27 (1973), pp.313-328.

In his recent work, Dummett says that he drew the wrong conclusion from the argument. Instead of rejecting a theory of meaning in terms of truth, he now rejects the redundancy theory under the narrow interpretation he had previously given it. In the 'Preface', he gives a brief explanation of his volte face (p.xxii). In the article 'Truth', he says, he had proposed explaining meaning, not in terms of truth, but in terms of the conditions for correct assertion. He had then declared that the only admissible notion of truth was one under which a statement is true when and only when we are able to arrive at a position in which we may correctly assert it. But he says, it would have been better first to state the restriction on the application of 'true', and then to have held the meaning of a statement is given by the condition for it to be true in this restricted sense of 'true'. The point he was trying to make in 'Truth', he continues, could have been better made by saying this: the notion of truth which has usually been taken to be central to a theory of meaning - namely, the notion which obeys the principle of bivalence - renders impossible an account of the linguistic abilities involved in a recognition of the condition for a sentence to be true. 'The problem is not whether meaning is to be explained in terms of truth-conditions, but what notion of truth is admissible'. ('Preface', p.xxii; see also 'Appeal to Use', p.129)

In his recent work Dummett acknowledges the possibility that a Tarskian truth-theory may provide the frame for a theory of meaning. But Dummett says that such a truth-theory will perform only the minimal task of giving the referential structure of the object-language. It will provide the referential structure by the way of the basis clauses which assign references to the atomic expressions. ('Theory of Meaning II',

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p.74) The basis clauses together with the recursion clauses constitute, in a standard truth-theory, a recursive characterization of satisfaction. The notion of satisfaction is then used to give an explicit definition of truth. In such a truth-theory each T-sentence is derived in a sequence of biconditionals. The first of these biconditionals results from applying the explicit definition of truth to a sentence of the form 'S is true'. Each succeeding biconditional in the sequence is obtained by applying basis and recursion clauses to eliminate semantic vocabulary from the right branch of the immediately preceding biconditional.

The important difference between a truth-theory which would provide the referential structure of a theory of meaning for Dummett and a truth-theory which would do the same for Davidson is in the operative notions of truth and falsity. In Dummett's theory intuitionistic truth and falsity will be operative while in Davidson's theory classical truth and falsity will be.⁷ What is the difference between classical and intuitionistic truth and falsity? The difference can be put as simply as this: the classical notions of truth and falsity obey the principle of bivalence and the intuitionistic notions do not.

The significant difference between a classical and an intuitionistic truth-theory, I am claiming, is in respect of the overarching semantic

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6. Davidson himself does not think that a truth-theory does more than provide referential structure. See 'Truth and Meaning', op.cit. pp. 310-311
 7. I take it to be well known that it is possible to have an intuitionistic truth-theory meeting the material adequacy condition. See Crispin Wright, 'Truth-Conditions and Criteria', Proceedings of the Aristotelian Society Suppl Vol 1976, § vi; John McDowell, 'Truth Conditions, Bivalence, and Verificationism', in Evans and McDowell, Truth and Meaning, op. cit, pp.50-51.

principle of bivalence. The two theories will not differ in respect of recursive structure. Each theory will have recursion clauses such as these:

- (i) For every sequence \underline{s} , \underline{s} satisfies $\neg\phi$ iff \underline{s} does not satisfy ϕ
- (ii) For every sequence \underline{s} , \underline{s} satisfies $\phi \vee \psi$ iff \underline{s} satisfies ϕ or \underline{s} satisfies ψ
- (iii) For every sequence \underline{s} , \underline{s} satisfies $\forall x \phi(x_i)$ iff for every \underline{s}' , where \underline{s}' differs from \underline{s} in at most the i -th place, \underline{s}' satisfies $\phi(x_i)$

As well as agreeing on the systematic dependence of the semantic value of a sentence on the semantic values of constituents, the two theories will agree that the only two semantic values that can be defined for complete sentences are truth and falsity. What is at issue between the two theories is not whether there are two such semantic values, but rather whether every sentence must have one value or the other.

Now Dummett identifies realism with the thesis that a knowledge of the sense of a sentence consists in knowing the conditions under which it is true or false, where the notions of truth and falsity obey the principle of bivalence. The significance of this identification lies in the restriction of truth and falsity by the principle of bivalence, rather than the identification of sense with truth-conditions. John McDowell is one philosopher who does not understand the significance of the identification.⁸ McDowell claims that realism, at least in

8. See 'Truth Conditions, Bivalence, and Verification', op.cit., passim.

Dummett's view, is to be identified with the truth-conditions theory of sense and not with the principle of bivalence. Anti-realism, he says, enjoins one to replace truth with verification or warranted assertibility as the fundamental notion in a theory of sense.

The alternative conception of sense would require a novel, anti-realist conception of the world; if truth is not independent of our discovering it, we must picture the world either as our own creation or, at least, as springing up in response to our investigations. So verificationist objections to a truth-conditions 9 conception of sense would have far reaching metaphysical implications.

What is puzzling here is how a conception of sense, as distinct from a conception of truth, might engender such a view of the world. Even more puzzling is when McDowell ascribes to anti-realism the view that an intuitionistic truth-theory may act as the frame for a theory of meaning and that such a theory of meaning is a realist one since it retains the identification of sense with truth-conditions.¹⁰ It is difficult to believe that an anti-realist, especially Dummett, would accept that an intuitionistic truth-theory is a realist theory. As Dummett's recent pronouncements have made clear, the issue of realism is not whether we give an analysis of meaning in terms of truth and falsity but whether the analysis makes use of classical truth and falsity.

The question whether realism is correct or not may be represented as turning, in Dummett's view, on whether the principle of bivalence should apply to the truth-theory which constitutes the referential structure of a theory of meaning. The question cannot be settled by any facts about reference which, in Dummett's view, are dealt with by a truth-theory: for, aside from the general principles of its underlying logic, any truth-

9. Ibid, p.48

10. Ibid, § 6

theory will deal with these facts with the same kind of basis clauses. The arguments which settle the question must appeal to considerations external to the truth-theory itself; in Dummett's view, to the general form the theory of meaning should take. It is to these arguments that we now turn.

§2. Full-Blooded and Modest Theories of Meaning

In this section I wish to consider the general form which Dummett thinks the theory of meaning should take. The following quotations illustrate Dummett's general conception of a theory of meaning:

... a theory of meaning is a theory of understanding; that is, what a theory of meaning has to give an account of is what it is that someone knows when he knows the language, that is, when he knows the meanings of the expressions and the semantics of the language ('Theory of Meaning I', p.99)

Of course what he [a speaker] has when he knows the language is practical knowledge, knowledge how to speak the language; but this is no objection to its representation as propositional knowledge; mastery of a procedure, of a conventional practice, can always be so represented, and whenever the practice is complex, such a representation often provides the only convenient mode of analysis of it. Thus what we seek is a theoretical representation of a practical ability. ('Theory of Meaning II' p.69)

A theory of meaning will, then, represent the practical ability possessed by a speaker as consisting in his grasp of a set of propositions; since the speaker derives his understanding of a sentence from the meanings of its component words, these propositions will naturally form a deductively connected system. The knowledge of these propositions that is attributed to a speaker can only be an implicit knowledge. ('Theory of Meaning II', p.70)

A good way of looking at Dummett's discussion of a theory of meaning is as follows: he is concerned to describe the general form of a theory which would lay open to understanding the whole workings of natural language in such a way as to be explanatory even to a creature who is

totally unfamiliar with natural language. The general constraints that Dummett thinks such a theory must meet are these: it must be a theory of what a speaker knows in knowing the meaning of the expressions and sentences of a natural language; it must provide a propositional representation of a speaker's semantic competence; it must take the form of a system of deductively connected sentences; and it must be such that tacit knowledge of the theory can be attributed to a speaker.

It might be questioned whether applying constraints such as these is necessarily the best way of obtaining the deeply explanatory theory that Dummett appears to be concerned with. The limitation of the constraints to semantic considerations is one ground for doubt. But in the remainder of the chapter I shall assume with Dummett that these constraints are roughly correct.

In 'Theory of Meaning I' Dummett draws a distinction between modest and full-blooded theories of meaning. One way he draws the distinction is by saying that a modest theory is one which merely states what is known by someone who understands the sentences of a language whereas a full-blooded theory explains how these facts are known. Another way in which he distinguishes between the two kinds of theories is by saying that a modest theory merely gives the meaning of the sentences of a language in a way which is explanatory to someone who has some language or other, while a full-blooded theory provides an account of the interpretation of a language which would be explanatory to someone who has no language at all. Dummett requires that a theory of meaning be full-blooded. From the perspective sketched two paragraphs above Dummett's requirement of full-bloodedness in a theory seems natural.

Most of 'Theory of Meaning I' is devoted to arguing that a Davidsonian theory of meaning is a modest theory of meaning which errs either through accomplishing no more than a translation manual or through requiring a holistic interpretation.

A translation manual does not constitute, in Dummett's view, a theory of meaning. It does not directly display in what an understanding of the translated language consists. A translation manual leads to an understanding of the translated language only via an understanding of the language into which the translation is made, an understanding which it does not itself supply. Now, in Dummett's view, a Davidsonian theory of meaning, which is essentially modest in character, does no more than a translation manual in this respect. For the truth-theory forming the core of a Davidsonian theory to yield an interpretation of the object-language, an understanding of the metalanguage is presupposed.

In proof of this thesis Dummett argues that one could know that all the axioms of the truth-theory are true and yet fail to understand the meaning of the object-language expressions the axioms are supposed to govern. For example, in a truth-theory where the metalanguage is an extension of the object-language, one could know that '"London"denotes London' is true without knowing the meaning of the expression "London". One's knowledge of the truth of the axiom would simply be due to a knowledge of the meaning of "denotes". What is needed over and above a knowledge of the truth of the axiom for the axiom to yield an interpretation of the object-language expression is an understanding of "London".¹¹

11. In this case the requirement that the metalanguage be understood leads to circularity. However, in a case where the metalanguage is not an extension of the object-language - say the axiom is '"London" denota Londra' - the requirement that the metalanguage be understood would still be necessary but would not lead to circularity.

So, for the truth-theory to yield to a person an interpretation of an expression belonging to the object-language it is presupposed that the person already understands the metalanguage in which the theory is framed. Consequently, in this respect a modest theory of meaning of the kind Davidson champions is no better than a translation manual: it projects one language onto another and makes an understanding of the first conditional on an understanding of the second.

Now Dummett conjectures that the reply Davidson would make to this criticism is to emphasize the holistic character of the theory of meaning. The theory does not purport to provide a piecemeal explanation of a speaker's understanding of each individual expression in the language; rather it provides at one time an explanation of a speaker's understanding of the whole language. Even the constraints which Davidson applies to his theory cannot serve to bridge the gap between a speaker's knowing the truth of an axiom of the truth-theory and knowing the meaning of the expression the axiom governs. For these constraints, having to do with maximizing agreement among speakers, are global constraints which apply to the whole theory. Dummett objects to a holistic theory of this kind on the grounds that it cannot distinguish disagreements over matters of fact from disagreements stemming from different interpretations.

I shall not attempt to defend Davidson against Dummett's criticisms; for I believe they are good criticisms. Rejection of a modest Davidsonian theory of meaning, however, does not entail accepting the kind of full-blooded theory of meaning which Dummett embraces. Dummett's conception

of a theory of meaning is as flawed as Davidson's. To see this we must have some more details of what Dummett means by a full-blooded theory of meaning.

Another way of seeing Dummett's distinction between modest and full-blooded theories of meaning is in terms of a division between theories which consist merely of a theory of reference and theories which possess a theory of sense as well. (Dummett's objections to a Davidsonian theory of meaning might be seen as focussing on its lack of a theory of sense.) How exactly does Dummett conceive of the theory of sense?

In 'Theory of Meaning II' Dummett gives a clear characterization of the theory of sense. He says that if a theory of meaning uses a truth-theory to give the referential structure of a language, then the theory of sense will lay down in what a speaker's knowledge of certain parts of the truth-theory consist. ('Theory of Meaning II', p.74) It will do this by systematically correlating certain practical abilities of a speaker with certain sentences of the truth-theory. If the theory of meaning is atomistic then a speaker will be required to have the practical abilities with respect to the axioms. If the theory is molecular the speaker will be required to have the practical abilities with respect to the theorems - the T-sentences - of the theory. ('Theory of Meaning II', pp.75-76) Dummett confines his attention to molecular theories and I shall follow him in this. In such theories the T-sentences state the truth-conditions of sentences and the practical abilities correlated with T-sentences are supposed to represent the manifestations of a speaker's knowledge of the truth-conditions.

Now Dummett only ever mentions two kinds of practical abilities so correlated with T-sentences. One kind, which I shall call verbal abilities, involves giving explicit explanations of the truth-condition of a sentence. Dummett says that a speaker has explicit knowledge of a sentence's truth-condition in this case.

If the sentence is of a form which a speaker can come to understand by means of a verbal explanation, then there is no problem: his knowledge of the truth-condition of the sentence is explicit knowledge, knowledge which is manifested by his ability to state that condition. ('Theory of Meaning II', p.80)

The other kind of practical ability, which I shall call recognitional ability, involves being in a position to observe that the truth-condition of a sentence obtains or fails to obtain. When a speaker has this ability with respect to some sentence Dummett says that he has implicit knowledge of its truth-condition.

... we may identify someone's [implicit] knowledge of the condition for the sentence to be true as consisting in his readiness to accept it as true whenever the condition for its truth obtains and he is in a position to recognize it as obtaining, together with his practical knowledge of the procedure for arriving at such a position, as manifested by his carrying out the procedure whenever suitably prompted. (Elements, p.374)

Now it is strange that Dummett mentions only verbal and recognitional abilities as manifestations of a speaker's knowledge of a sentence's truth-condition. There are several other kinds of abilities that Dummett might have mentioned. Consider a speaker's ability to pursue correctly the practices of evidentially evaluating assertions. Even Dummett should concede that a speaker could come to understand the truth-conditions, however construed, of sentences through recognizing the conditions which warrant, to different degrees, assertions of the sentences and the conditions which warrant, to different degrees, withdrawals of the assertions. An anti-realist like Dummett might wish to

add the following reservation to this claim: when the truth-conditions of sentences are construed classically and not constructively one could not learn the classical conception of truth through acquiring the practices of tentative assertion and subsequent withdrawal; rather that conception of truth would ¹² govern the practices. On a realist understanding of these practices of evidential evaluation, a grasp of the classical truth-condition of a sentence would be a grasp of the condition which determines what counts as good evidence and what counts as damaging evidence for the assertion of the sentence. Nonetheless, regardless of whether the truth-condition receives a classical or constructivist interpretation, it is undeniable that a speaker could manifest his understanding of the truth-condition of a sentence by a correct pursuit of the practice of evidential evaluation.

An even more glaring omission by Dummett is his failure to mention the ability of speakers to recognize arguments as valid and invalid. It is clear that there is no better kind of ability to examine in connexion with tests of a speaker's knowledge of a sentence's truth-condition than his ability to discern the validity of an argument which contains the sentence as assumption, premiss, or conclusion. The reason for this is familiar: an argument is valid when and only when the truth of the assumptions and premisses necessitates the truth of the conclusion. Consequently, a recognition of the validity of the argument requires an understanding of the conditions under which the assumptions, premisses, and conclusions are true. Moreover, by determining whether a speaker accepts classically valid or only intuitionistically valid arguments it is possible to settle

12. For this point see the exchange between Strawson and Wright: P.F. Strawson, 'Scruton and Wright on Anti-Realism Etc', Proceedings of the Aristotelian Society, vol LXXVII, p.16; Crispin Wright, 'Strawson on Anti-Realism', Synthese, XL(1979), p.296

whether he is interpreting the truth-conditions of the relevant sentences classically or intuitionistically.

It is unclear why Dummett should have chosen not to mention these abilities, possessed by speakers, to follow the rules of evidential evaluation and to judge whether arguments are valid or not. (I shall call these abilities evidential and inferential abilities respectively.) At any rate, they do not lend much support, as we shall see, to his criticisms of a realist theory of meaning which assumes the principle of bivalence.

§3 An Argument against Realism

Now Dummett places the whole weight of his attack on realism on certain arguments about the form which a theory of meaning should take. From §1 it is clear that Dummett identifies realism with the thesis that knowing the meaning of a sentence consists in knowing the conditions under which it is true or false, where the notions of truth and falsity obey the classical principle of bivalence. What is important about this identification is the restriction of truth and falsity by the principle of bivalence, rather than the equation of meaning with truth-conditions. In fact Dummett envisages the possibility of a theory of meaning in terms of the conditions for a sentence's being true or false; the only difference is that he understands the notions of truth and falsity intuitionistically.

The arguments against realism revolve around what Dummett calls undecidable sentences:

The difficulty arises because natural language is full of sentences which are not effectively decidable, ones for which there exists no effective procedure for determining whether or not their truth-conditions are fulfilled... Many features of natural language contribute to the formation of sentences not in principle decidable: the use of quantification over an infinite or unsurveyable domain (e.g. over all future times); the use of the subjunctive conditional, or of expressions explainable by means of it; the possibility of referring to regions of space-time in principle inaccessible to us. ('Theory of Meaning II', p.81)

An undecidable sentence, then, is simply one such that no effective procedure is available to us for finding out whether it is true or false.

The passage above does not tell us the kind of effective procedure which is available in the case of decidable sentences but not in the case of undecidable ones. In mathematics, an effective procedure would be an algorithm like multiplication, addition, etc. But what are the analogues of these computation procedures in the case of non-mathematical decidable sentences? There is good evidence to show that Dummett believes that the only effective procedure we have in the case of non-mathematical sentences is observation. (See 'Theory of Meaning II', pp.98-99; Elements, pp.378-379) So, in short, a non-mathematical sentence is undecidable for Dummett because we cannot observe it to be true or false. This view entails that all past-tense sentences, all counterfactuals, and all sentences quantified over an infinite domain are undecidable. But note that although a sentence may be undecidable it need not remain undecided: some non-effective method of verification may settle the sentence's truth-value.

So what is the argument against the theory of meaning given in terms¹³ of classical truth and falsity? The argument goes like this. There

13. This is the form of the argument developed by Crispin Wright 'Truth Conditions and Criteria', op.cit., §II-IV; and Dag Prawitz, 'Meaning and Proofs: on the Conflict between Classical and Intuitionistic Logic', Theoria, XLIII (1977), pp.2-40

is no difficulty in saying what constitutes a speaker's implicit knowledge of the conditions for the classical truth and falsity of a sentence, just so long as there is some effective procedure available to him which will put him in a position to recognize directly that one of the conditions is satisfied. ('Theory of Meaning II', pp.80-81) But, in the case of empirically undecidable sentences, the only effective procedure available to the speaker, namely observation, is fruitless. So there can be no point to ascribing to someone implicit knowledge of the classical truth-condition of an empirically undecidable sentence. ('Theory of Meaning II', pp.81-82) But there is no point either to saying that the speaker has explicit knowledge of the classical truth-condition of such a sentence. Even if he can state another undecidable sentence with the same classical truth-condition, how are we to explain, without circularity, the way in which he knows the classical truth-condition of the new sentence? ('Theory of Meaning II', p.82) Consequently, a speaker's knowledge of the classical truth-condition of an empirically undecidable sentence is not of the two kinds which Dummett enumerates; in other words, a speaker cannot manifest his knowledge through displays of his verbal and recognitional abilities. Since these abilities exhaust the range of abilities, there is no content to the ascription to a speaker of knowledge of some sentences' classical truth-conditions. If we can find no systematic explanation of how a speaker may know the conditions of classical truth and falsity for sentences, these notions of truth and falsity cannot play any part in a theory of meaning, broadly construed as a theory of understanding. ('Theory of Meaning II', pp.82-83)

Roughly, the form of Dummett's argument is this:

- (i) There are only two possible accounts of a speaker's knowledge of a sentence's truth-condition: the account of implicit knowledge and the account of explicit knowledge.
- (ii) A speaker's knowledge of the classical truth-condition of an undecidable sentence does not conform to the account of implicit knowledge.
- (iii) Nor does it conform to the account of explicit knowledge.

I wish to question the truth of (i) and (iii).

I start with step (i). It says that one can only have either implicit knowledge of a sentence's truth-condition, as manifested by recognitional abilities, or explicit knowledge, as manifested by verbal abilities. Now I have characterized two other kinds of abilities - evidential and inferential - to which one can appeal to give content to an ascription to a speaker of knowledge of a sentence's truth-condition. Indeed, by inspection of a speaker's practices of evidential evaluation one can determine that he has a grasp of truth-conditions finer-grained than conditions of warranted assertibility and by inspection of his inferential practices one can determine that these conditions are classical truth-conditions.

As regards step (iii), the argument is unconvincing as well. There is no reason that a person cannot manifest his knowledge of an undecidable sentence's classical truth-condition by giving another undecidable sentence with the same truth-condition. His knowledge of the new sentence's truth-condition will involve his being able to give yet another undecidable sentence with the same truth-condition. Now

Dummett assumes that this process cannot go on without it returning full-circle to the original undecidable sentence. I think that Dummett's assumption is correct but it does not create a problem for the view being considered. One may legitimately explain, provided the circle is large enough, a speaker's understanding of a number of undecidable sentences by his ability to relate their truth-conditions to each other.

This circle of explanatory interdependence is objectionable only if one holds the belief that it represents the way in which we learn the meaning of the sentences. Dummett's objections to accounting for a speaker's knowledge of the classical truth-conditions of undecidable sentences in terms of explicit knowledge can be explained by the fact that he holds such a belief.

... an explicit knowledge of the truth-condition of a sentence can constitute a speaker's grasp of its meaning only for sentences introduced by purely verbal explanations in the course of the progressive acquisition of the language: it would notoriously, be circular to maintain that a speaker's understanding of his language consisted, in general, of his ability to express every sentence in other words, i.e. by means of a distinct equivalent sentence of the same language. ('Theory of Meaning II', p.80)

But clearly, it is a mistake to believe that the way in which a person may manifest his understanding of a sentence must coincide with the way in which he learnt the sentence. (For one, there is the problem that we do not learn sentences but words.) Once one sees the mistake one can also see that there is no objection to taking a speaker's knowledge of the classical truth-condition of an undecidable sentence to consist in explicit knowledge. Dummett's strictures against this view depend, I think, on illicit assumptions about the nature of language-acquisition.

§4 Dummett's Assumptions about Language-Acquisition

In presenting Dummett's argument against realism I freed it of the assumptions about language-acquisition which Dummett makes in 'What is a Theory of Meaning? II', Elements of Intuitionism, and other works. I presented what has been called the manifestation form of the argument against realism.¹⁴ But now I wish to consider the acquisition form of the argument.

Dummett remarks, on several occasions, that an understanding of a sentence usually depends on an understanding not merely of the words which compose it and of other sentences that can be constructed from them, but of sentences belonging to a sometimes extensive segment of the language. ('Theory of Meaning II', pp.78-79; Elements, pp.367-68) The sense in which an understanding of one sentence depends upon an understanding of a class of other sentences is that in which, in order to grasp the meaning of the single sentence, one must have already learnt the meaning of the sentences belonging to the broader class. Dummett suggests that it would be possible to construct a partial ordering of sentences, according as the understanding of one sentence is or is not dependent, in the sense explained, upon the prior understanding of another. Such a partial ordering, he says, would be a model for the way in which we progressively learn the language.

14. John McDowell, 'On "the Reality of the Past"', in Christopher Hookway and Philip Pettit, (eds.) Action and Interpretation, (Cambridge: Cambridge University Press, 1978), § 7, pp.138-9; Colin McGinn, 'Truth and Use', in Mark Platts (ed.), Reference, Truth and Reality, (London: Routledge and Kegan Paul, 1980) p.26

Now the way in which Dummett actually formulates the argument against realism in 'What is a Theory of Meaning? II' and Elements of Intuitionism is in terms of this model of the progressive acquisition of language.

I set out the premisses of the argument with relevant quotations below.

(a) The rank of a sentence in the partial ordering is an intrinsic feature of its meaning; in other words, the way in which a sentence is learnt is an enduring characteristic of its meaning.

In particular, it is evident that, in practice, once we have reached a certain stage in learning our language, much of the rest of the language is introduced to us by means of purely verbal explanations; and it is reasonable, as well as traditional, to suppose that such explanations frequently display connections between expressions of the language a grasp of which is actually essential to an understanding of the words so introduced. ('Theory of Meaning II', p.79)

(b) The kind of meaning a sentence possesses, as fixed by its rank in the partial ordering, determines whether a speaker can have implicit or explicit understanding of it. A speaker can have implicit understanding of the sentences which are the minimal elements of the ordering and explicit understanding of the other sentences.

... an explicit knowledge of the truth-condition of a sentence can constitute a speaker's grasp of its meaning only for sentences introduced by means of purely verbal explanations in the course of his progressive acquisition of the language... His understanding of the most primitive part of the language, its lower levels, cannot be explained in this way: if that understanding consists in a knowledge of the truth-conditions of sentences, such knowledge must be implicit knowledge... ('Theory of Meaning II', p.80)

(c) There are some undecidable sentences which are minimal elements in the ordering.

The existence of such[undecidable]sentences cannot be due solely to the occurrence of expressions introduced by purely verbal explanations: a language all of whose sentences were decidable would continue to have this property [of decidability] when enriched by expressions so introduced. ('Theory of Meaning II', p.81)

It follows from these premisses that at least some undecidable sentences are minimal elements in the partial ordering of which a speaker can have only implicit understanding. But, in Dummett's eyes, as we saw earlier, the ascription to a speaker of implicit understanding of an undecidable sentence's classical truth-condition is without content.

I believe that the premisses of this argument are disputably false. Any sentence containing an expression which has become more precise in meaning through use in scientific discourse (eg. mass, simultaneity) constitutes a counter example to premiss (a): the way in which such an expression was introduced to us is not an enduring trait of its meaning. In view of the falsity of (a), it is unreasonable to suppose that (b) is true: the way in which one first learnt an expression does not determine the appropriate way to manifest one's understanding of it. As regards (c), it is not true that a fragment of a language consisting only of decidable sentences would continue to have the property of decidability when new expressions are introduced by verbal explanation. Consider the fragment consisting of sentences describing a person's behavioural states. One can introduce the expression 'pain' in terms of a set of behavioural expressions in this way: pain is what causes a person to evince a certain range of behavioural states when certain stimulus conditions are present. The addition of the expression 'pain' to the fragment permits the formation of undecidable sentences such as 'John is in pain'.

A more general difficulty with this argument concerns the partial ordering of sentences in terms of which the argument proceeds. The question is: How does this partial ordering represent a model of language-acquisition? Now it is clearly a mistake to believe that one

can put sentences in an ordering in such a way that the sentences learnt first occur as minimal elements and sentences learnt subsequently occur as non-minimal elements of the ordering. This is for the simple reason that we do not learn sentences. As we progressively acquire a language, we learn individual words and phrases and the syntactic constructions in which the words and phrases may occur.

Perhaps Dummett's belief that there is a partial ordering of sentences which reflects facts about language-acquisition relies upon the assumption that there is a primary partial ordering of words and phrases reflecting the order in which they were learnt and a derivative partial ordering of sentences, obtained by taking the ranks of the individual words composing a sentence as arguments for a function which gives us, as value, a rank in an ordering for the whole sentence. This assumption, however, entails that the function assigning ranks to sentences in the derivative partial ordering is so completely specified as to discriminate between sentences, perhaps of different lengths, with a mixture of primitive and complex words.

Even on the supposition that such a function is feasible, it is incorrect to believe that it will yield an ordering of sentences of the kind Dummett wants. Dummett intends the ordering of sentences to determine the sentences of which it is appropriate to have explicit understanding and the sentences of which it is appropriate to have implicit understanding. But these two types of understanding - or better, ways of manifesting one's understanding - relate directly to the appropriate units of language-acquisition: the difference between implicit and explicit understanding corresponds to the difference in the way we learn the units of language-acquisition. We have seen that words, and not sentences,

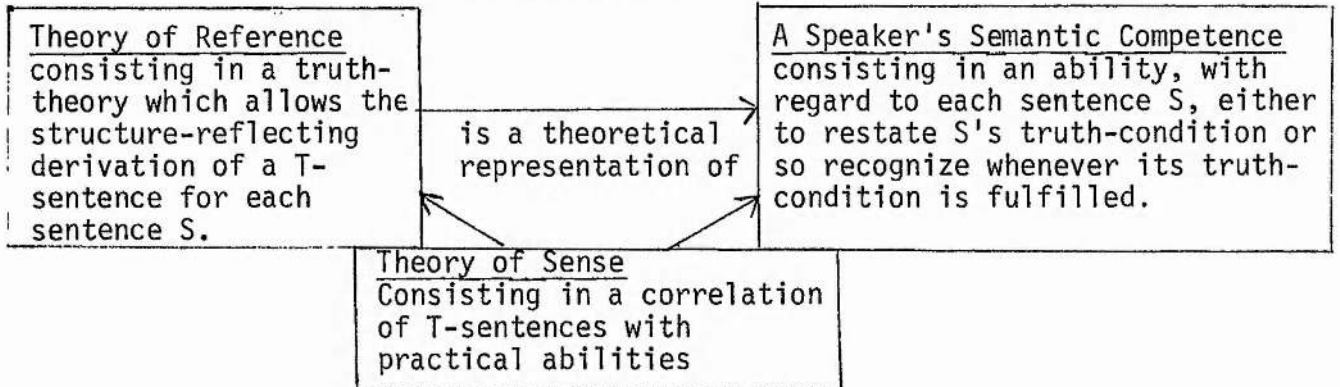
are the appropriate units of language-acquisition: it makes sense to speak of having implicit or explicit understanding of words but not of sentences. So no matter how completely specified the function which yields the derivative partial ordering of sentences, it cannot provide one with any grounds for saying that, for an undecidable sentence containing a mixture of primitive and complex words, a speaker has completely implicit or completely explicit understanding of the sentence. In fact, the speaker has implicit understanding of some words and explicit understanding of others.

Thus Dummett's actual presentation of the argument against realism depends upon many assumptions about language-acquisition which I have argued are, at the very least, very disputable. These assumptions, I believe, can only be conclusively established as true or false by psycholinguistic investigations. For this reason I shall turn to matters where philosophical arguments can be decisive.

§5 Two More General Objections

I have produced objections to both the manifestation and acquisition forms of Dummett's argument against realism. But I think that more general criticisms can be brought against Dummett's general conception of the form which the theory of meaning should take. It is convenient at this point to have a pictorialization of Dummett's general conception of the theory of meaning. Below is a diagram which represents Dummett's conception

Tacit knowledge of the theory of reference is attributed to a speaker to account for his semantic competence



The first criticism I wish to make of Dummett's conception of the theory of meaning concerns the requirement that the theory have, as a component, a theory of sense. It is this requirement which makes his theory of meaning a full-blooded one, distinct from a modest theory like Davidson's. Dummett's characterization of the theory of sense is unusual. Frege simply describes the sense of an expression as what is known by a speaker who understands the expression. Dummett's conception of sense is completely different from Frege's in that it requires the theory of sense to specify not just what a speaker knows in understanding an expression but how this knowledge is manifested. The theory of sense, in Dummett's view, must correlate with each T-sentence, 'S is true if and only if p', which states what a speaker understands who knows the truth-condition of S, a practical linguistic ability which is the manifestation of this knowledge. Why does Dummett require the theory of meaning to contain, as a component, a theory of sense, so conceived?

There are passages in 'The Philosophical Basis of Intuitionistic Logic' (pp.216-218) and 'What does the Appeal to Use do for the Theory of Meaning?' (pp.133-135) which explain Dummett's reasons for

insisting that the theory of meaning should contain not only a theory of reference which states what a speaker knows in understanding the sentences of a language, but also a theory of sense which states how this knowledge is manifested. Dummett says that the source of the additional requirement of a theory of sense lies in Wittgenstein's dictum that meaning is exhaustively determined by use. Dummett interprets the dictum as entailing that every aspect of sentence-meaning should be completely manifestable in the observable features of speakers' linguistic practice. Consequently, these features of speakers' linguistic practice will constrain the account that is given of what speakers understand in knowing the meanings of sentences. To put this in terms of Dummett's conception of the theory of meaning: a theory of meaning, conforming to the Wittgensteinian dictum, will require a theory of sense to constrain the way in which the theory of reference represents speakers' knowledge of sentence-meaning. The theory of sense will constrain the theory of reference by ruling out any conception of truth which does not allow the systematic correlation of T-sentences with the practical abilities which make up general linguistic practice.

Now what is the basis for the Wittgensteinian dictum itself? In 'The Philosophical Basis of Intuitionistic Logic' Dummett argues for the dictum on the basis of the very general thesis that meaning is essentially communicable. (pp.216-218) Communication relies upon the fact that the meanings a speaker associates with sentences are publicly accessible to other speakers through his linguistic practice. Now if meaning were not exhaustively manifestable by use, we could suppose that some aspect of a sentence's meaning is not manifested in linguistic practice. But this would be to entertain

the absurd belief that some aspect of a sentence's meaning is incommunicable.

I do not wish to dispute the Wittgensteinian dictum that meaning should be exhaustively manifestable in use. What I wish to dispute is the particular way in which Dummett employs the dictum as a constraint on the theory of meaning. My first objection to Dummett's general conception of the theory of meaning is that the application of the Wittgensteinian dictum as a constraint on the theory of reference overlooks the conditions of idealization which must surround that theory. Where a complex physical system is being studied, considerations of simplicity and explanatory power in the theory require that the processes constituting the physical system be studied under idealization. Consequently, it is to be expected that a theory of a linguistic competence will operate under idealizations concerning speaker-hearers.¹⁵ When there is such idealization in a theory there is no clear guarantee that there will be a complete, or even a partial, matching of sentences of the theory with specific abilities constituting the competence being studied. For example, it would be unreasonable to expect that to every sentence produced by a generative grammar there corresponded an ability on the part of a speaker to recognize effectively that the sentence was grammatical or ungrammatical. The simplest and most explanatory grammar may need to be viewed as operating under the idealization that the speakers have unlimited memory and unlimited attention span. In this case the sentences which the grammar issues in may be so long that no actual speaker has the memory or attention span to judge whether they are grammatical or not.

15. For a classic statement of this position see Noam Chomsky Aspects of the Theory of Syntax, (Cambridge: M.I.T. Press, 1976) Chap 1; Reflections on Language, (Glasgow: Fontana Books, 1976) Chap I; Rules and Representations, (New York: Columbia University Press, 1980) Chaps 1-3

Now consider a theory of semantic competence which takes, as phenomena to be explained, the evidential and inferential abilities that I adverted to in §2. It is conceivable that such a theory of semantic competence, in attempting to provide some systematic explanation of speakers' practices of evidential evaluation, would need to credit them with a conception of truth which is finer-grained than warranted assertibility. For it is reasonable to claim that understanding how different types of evidence for sentence fall short of being conclusive requires a grasp of the sentence's truth-condition, which is the measure of the inconclusiveness of the evidence. Moreover, a systematic explanation of speakers' inferential practices might also require seeing this fine-grained conception of truth as satisfying the classical principle of bivalence. For example, if speakers regularly accept arguments having the form of dilemma or *reductio ad absurdum* then it would be reasonable to conclude that the speakers' concept of truth is the classical one. Under these circumstances, there would be some content to a theory of semantic competence which employed the idealization that speakers could observe directly whether the truth-condition of a sentence, no matter whether it concerns remote or accessible states of affairs, is fulfilled or not. If such an idealization served the purposes of theory-construction - the regimentation of phenomena into simple and explanatory order - then it would be in principle possible for the idealization to have a role in the theory. In such a case there would be no complete correlation of sentences of the theory with actual recognitional abilities possessed by speakers.

This conception of the role of idealization in theory does not rule out the possibility of explanations of the actual phenomena of which the theory is supposed to be a model. The theory, embodying various idealizations, does that job with the aid of parameters. In the way that theories of memory and language-processing might be added as parameters to an idealized theory of syntactic competence,¹⁶ so a theory of human perception might be added as a parameter to the theory of semantic competence, as described above, to explain speakers' actual recognitional capacities with regard to the truth-conditions of sentences.

What this conception of the role of idealization does rule out is the view that the theory must be exhaustively explicable in terms of the phenomena within its domain. Dummett criticizes a theory of meaning which takes the sense of a sentence to consist in the conditions for its classical truth and falsity on the grounds that an ascription of understanding to a speaker of certain classes of sentences cannot be exhaustively explained in terms of a speaker's verbal and recognitional abilities.

Acknowledging sentences as true or false is among the things which he [the speaker] learns to do; more precisely, he learns to say and do various things as expressions of such acknowledgement. But knowing the condition which has to obtain for a sentence to be true is not anything which he does; nor something of which anything that he does is the direct manifestation. We have seen that, in some cases, we can explain acceptably enough, in terms of what he says and does, what it amounts to to ascribe such knowledge to him. But in other, crucial, cases, no such explanation appears to be available. [last two italics mine] (Theory of Meaning II', pp.82-83)

16. See Noam Chomsky, Aspects of the Theory of Syntax, op. cit., Chap 1, §2 and the articles cited therein.

The thrust of my objection to Dummett is that he gets the direction of explanation wrong. It is not a speaker's verbal and recognitional abilities which are supposed to explain his knowledge of the theory of reference but the other way round. The theory of reference is supposed to be a model or theoretical representation of a speaker's semantic competence consisting, in Dummett's view, of a cluster of verbal and recognitional abilities. Given the amount of idealization necessary for theory-construction, it is not plausible to suppose that the phenomena should explain the theory or that there should be a simple mapping of sentences of the theory onto isolated phenomena.

My second objection to Dummett's general conception of the theory of meaning concerns the explanatory power of the theory of reference. This part of the theory of meaning consists of a recursive truth-theory which models the way in which the senses of sentences are compounded from the senses of their constituents. But the theory of reference is also supposed by Dummett to provide a theoretical representation, via the theory of sense, of the cluster of practical abilities which make up a speaker's semantic competence. The question I wish to raise is whether the theory of reference can provide such a representation of all the heterogeneous linguistic abilities which make up semantic competence. As instances of these linguistic abilities, Dummett cited verbal and recognitional abilities and I cited evidential and inferential abilities. It is clear, I believe, how a truth-theory may provide a theoretical representation of a speaker's inferential abilities: the truth-theory will give a model of the systematic contribution each expression - in particular, each logical constant - makes to the truth-conditions of the sentences in which it occurs

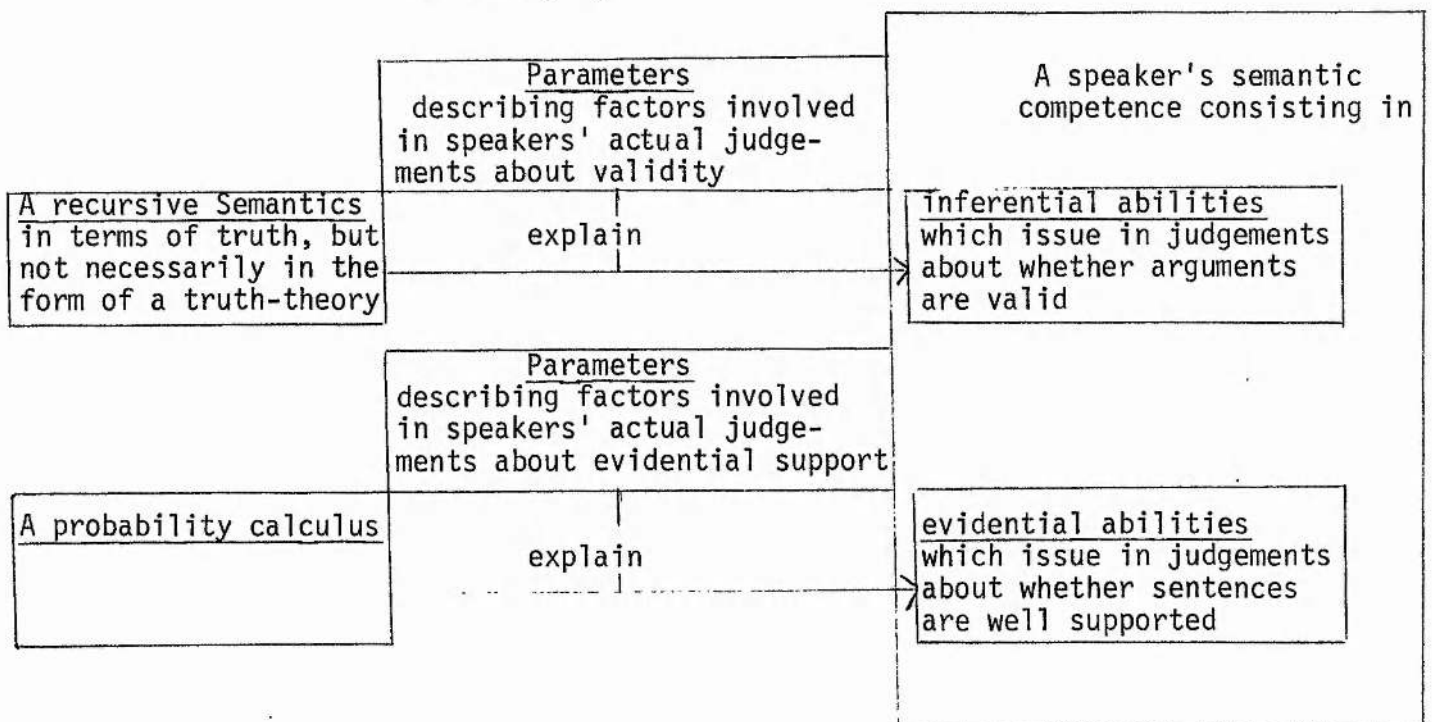
and so will give a model of the inference-potential of these sentences. But it is not so clear how a truth-theory, with its recursive specification of the truth-conditions of sentences, will yield a theoretical representation of a speaker's recognitional or verbal abilities.

I am not raising the question whether the theory of reference, given in terms of a central conception of truth, can account for all the pragmatic abilities which are involved in the theory of force. In my depiction of Dummett's programmatic conception of the theory of meaning I left out the theory of force. This theory gives an account, in Dummett's view, of the various kinds of linguistic acts which may be effected by the utterance of a sentence. It does this by yielding, for each type of linguistic act, a uniform account of how an utterance of an arbitrary sentence, with a known truth-condition, may effect an act of that type. ('Theory of Meaning II', pp.72-75)

Dummett draws a distinction between a speaker's pragmatic abilities which are the subject of the theory of force and his semantic abilities which are the subject of the theory of reference. He says that his argument against realism does not relate to any inadequacy on the part of the theory of force to provide a faithful representation of pragmatic competence but rather relates to the failure of the theory of reference to provide a faithful representation of semantic competence, in particular of verbal and recognitional abilities. ('Theory of Meaning II', p.82) The question I am raising is this: why should the theory of reference be required at all to be responsive to a speaker's verbal and recognitional abilities?

I suggest that Dummett's requirement that the theory of reference, in the form of a recursive specification of the truth-conditions of sentences, should provide a theoretical representation of a speaker's recognitional and verbal abilities is misplaced. The appropriate range of abilities to form the subject-matter of the theory of reference, so conceived, are the inferential abilities possessed by speakers. These abilities involve being able to discriminate valid from invalid arguments. Possession of these discriminative powers entails understanding the truth-conditions of the sentences which enter into the arguments: for a valid argument is just one in which the truth of the sentences acting as premisses or assumptions necessitates the truth of the sentence acting as the conclusion. It is the connexion between truth and validity which makes a theory of reference, in the form of a recursive specification of sentences' truth-conditions, an appropriate model of speakers' inferential abilities.

In order to provide a contrast with Dummett's conception of a theory of meaning I diagram below/part of the semantic component of the theory of meaning of the kind I am envisaging.



Such a theory, even in its most schematic formulation, is totally different from Dummett's. The difference does not just reduce to a difference over the phenomena which the theory of meaning must account for: Dummett has verbal and recognitional abilities while I have evidential and inferential abilities. In acknowledging the need for idealization in theory-construction, the theory sketched above lacks any equivalent to Dummett's theory of sense, which connects theory with phenomena in a piecemeal fashion. In acknowledging the modular structure of semantic competence, it posits, in contrast with Dummett's theory, different theoretical representations for the different constitutive abilities.¹⁷

It is significant to observe that this conception of the theory of meaning does not fall into either category of modest or full-blooded theory. It is not a full-blooded theory: it does not contain a description of how a speaker's implicit knowledge of the sentences of the theory is manifested. But such a theory is not modest either. It conveys more information than the facts which a speaker knows when he knows the meanings of the sentences of a language: it provides an explanation of the way in which a speaker, on individual occasions, exercises the abilities constituting his semantic competence.

17. For a discussion of the modular structure of linguistic competence, from which I have learnt much, see Noam Chomsky, Rules and Representations op. cit., pp.40-46, 60-61, 89-90.

CHAPTER THREE

VERIFICATIONISM AND LOGIC

In this chapter I shall discuss the way in which Dummett thinks that his argument against realism necessitates a repudiation of classical logic in favour of intuitionistic logic. In §1 I shall complete the discussion of issues raised by Dummett's argument against realism. I shall argue that Dummett has no satisfactory line of defence against my principal objection to his argument against realism. In §2 I shall present Dummett's distinction between demonstrations and canonical proofs and his more general distinction between direct and indirect verifications. In §3 I shall consider the way in which Dummett attempts to characterize mathematical truth and general truth in terms of these distinctions. In §4 I shall discuss a problem which confronts a verificationist theory of meaning of the kind Dummett espouses and show that there is a flaw in Dummett's argument that a verificationist theory of meaning leads to a rejection of classical logic.

§1 Dummett's Arguments against the Appeal to Inferential Abilities

Dummett identifies realism with the thesis that a speaker's understanding of the sentences of a language should be analyzed in terms of the notions of classical truth and falsity. Dummett's argument against realism, so conceived, relies heavily on using Wittgenstein's dictum that meaning should be exhaustively manifestable in use as a constraint on the theory of meaning, that is, the theory of what a speaker knows in understanding the sentences of the language. Wittgenstein's dictum is used as a constraint on the theory of meaning in the sense that it restricts the concept of truth to be employed in the recursive specification of sentences' truth-conditions.

None of the objections I lodged against Dummett's argument in the last chapter was intended to involve a denial of Wittgenstein's dictum. One objection, lodged in §5 of the last chapter, was that a sophisticated adherence to the principle, which makes due concession to the amount of idealization involved in constructing a systematic and explanatory theory of meaning, does not require that sentences of the theory be connected in a piecemeal fashion with practical linguistic abilities. An earlier objection, lodged in §2, was that if speakers' inferential abilities are included as part of the use in which speakers' understanding of sentences can be manifested, then there are no grounds for denying, even given the application of Wittgenstein's dictum as a strict constraint on the theory of meaning in the way that Dummett intends, that speakers can manifest their knowledge of the conditions for the classical truth and falsity of sentences.

This last objection is an obvious one to make. Therefore, we should expect Dummett to have some response to it. There are, in fact, two lines of argument in Dummett's work which can be seen as responses to this objection. One line of argument is this:

This answer[involving the appeal to inferential abilities] is thin. It is undoubtedly the case that if we have a grasp of some conception of truth for mathematical statements with respect to which the principle of bivalence holds, then the laws of classical logic are valid; but it is hardly plausible that the mere propensity to reason in accordance with these laws should constitute a grasp of such a notion of truth. (Elements, p.376)

Dummett is certainly correct when he says that merely having a disposition to employ classically valid inferences cannot constitute a grasp of the notions of classical truth and falsity. As he goes on to say after the passage

quoted, even if we were trained to apply the classical laws of logic to a range of sentences, such training would not of itself equip us with an understanding of the conceptions of truth and falsity under which every sentence of the range must be determinately either true or false. A grasp of these notions, is, in fact, presupposed by a training in the classical modes of reasoning.

Without denying this, one can still argue that the acceptance by most speakers of classically valid inferences constitutes a part of linguistic use which manifests, even though it does not explain, speakers' knowledge of the classical truth-conditions of sentences. Conformity with the Wittgensteinian dictum does not impose the strong requirement that a concept, partly constitutive of meaning, should be exhaustively explicable in terms of use, but only the weak requirement that an understanding or a knowledge of the concept be exhaustively manifestable in use. The position I hold entails that speakers have a conception of classical truth which governs their customary inferential practices. Of course, this position leaves unanswered the question of how we acquire this governing conception of truth. This is a question which goes beyond the scope of this thesis. My aim in this thesis is merely to determine whether Dummett's argument against realism is cogent. I believe that the argument is not cogent because the realist may legitimately appeal to our classical inferential practices as constituting that part of our use of language which manifests our knowledge of sentences' classical truth-conditions.

Another line of argument against my appeal to classical inferential practice might be to acknowledge that this practice is part of our use of language but to assert that nonetheless it stands in need of revision. This line of argument might be seen in the passages in which Dummett insists that the need to harmonize different aspects of use may lead to revision of some aspects of use. ('Theory of Meaning II', pp.103-105) Dummett mentions

two aspects of the use of a sentence in this connexion: the conditions under which one is justified in making a statement and the consequences which one is entitled to draw from the statement's being made. The intuitive requirement of harmony which Dummett imposes on these two aspects of use, in respect of some type of statement, is that the addition of a statement of the given type to a language does not enable one to deduce any other type of statement which was previously not deducible. (For discussion of the distinction between conditions and consequences and the required harmony between them, see Frege, pp.354-358; pp.362-363; pp.396-397; pp.453-455)

Dummett says that the distinction between the two aspects of use is a generalization of a proof-theoretic distinction between the role played by introduction-rules and the role played by elimination-rules in systems of natural deduction. (Frege, p.454) Since I find the proof-theoretic distinction to be clearer than the more general distinction between the two aspects of the use of a sentence, I shall present the argument for the revision of our classical inferential practices in terms of the proof-theoretic distinction.

In a system of natural deduction, the introduction-rule for a logical constant can be seen as giving the condition for its application and the elimination-rule as giving a consequence of its application. Gentzen's original idea in setting up his systems of natural deduction was that the introduction-rule for a logical constant gives a definition of the constant. The elimination-rule, in Gentzen's words, 'is only a consequence of the corresponding introduction-rule, which may be expressed somewhat

as follows: when making an inference by an elimination-rule, we are allowed to "use" only what the principal sign of the major premiss "means" according to the introduction rule for this sign.¹

Gentzen requires that there be a certain relation between the introduction and elimination rules for a logical constant. This relation is described more formally by Prawitz's principle of inversion.²

Let I and J be the introduction and elimination rules for a logical constant c. If A is a consequence of applying the elimination rule J, then a deduction of the major premiss of J, the last step of which consists of an application of the introduction-rule I, must already contain a deduction of A.

When a pair of introduction and elimination rules satisfy this principle, they are in harmony in the sense that their addition to a set of sentences is a conservative extension of the set. (A theory Θ in language L_1 is a conservative extension of Γ in language L_0 if and only if, for every formula A of L_0 , if $\Theta \vdash A$ then $\Gamma \vdash A$.) For example, consider a set of sentences Γ in a language L_0 and suppose that, for two formulas A and B of L_0 , $\Gamma \vdash A$ and $\Gamma \vdash B$. After the addition of the introduction and elimination rules for '&' to L_0 , the only way to deduce by means of these rules a formula of L_0 without '&' is by applying the introduction and

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1. G. Gentzen, 'Investigations into Logical Deduction', in M. Szabo (ed.), The Collected Papers of Gerhard Gentzen, (Amsterdam, North-Holland, 1969), p.80
 2. See Dag Prawitz, Natural Deduction, (Stockholm: Almqvist and Wiksell, 1965), pp.32-35; 'Ideas and Results in Proof Theory', in J.E. Fenstad (ed.), Proceedings of the Second Scandinavian Logic Symposium, (Amsterdam: North-Holland, 1971), pp.246-247.

elimination rule consecutively as below:

$$\begin{array}{c}
 \frac{\Gamma \quad \Gamma}{\frac{\frac{A \quad B}{A \& B}}{A}}
 \end{array}$$

But since the introduction and elimination rules for '&' satisfy the principle of inversion, the deduction of/ ^{one of the premisses} of the elimination-rule already contains a deduction of the consequence of the elimination-rule. In fact this is the deduction of A from Γ . So it is clear in this case that the consecutive application of the introduction and elimination rules for '&' will allow us to deduce from Γ only the formulas of L_0 which were deducible from Γ without the rules; or, in other words, that the addition of the introduction and elimination rules for '&' to L_0 constitutes a conservative extension of Γ .

Dummett says that the fact that our use of sentences does not meet the requirement of harmony creates grounds for criticizing the use. ('Philosophical Basis', p.222) In particular, our use of the classical rules of inference is criticizable on the grounds that they do not meet the requirement of harmony. They do not meet the requirement of harmony in the sense that their addition to the atomic fragment of first-order logic constitutes a non-conservative extension of the fragment.

If we consider a fragment of natural language lacking the sentential operators, including negation, but containing sentences not effectively decidable by observation, it would be impossible for that fragment to display features embodying our recognition of the undecidable

sentences as determinately true or false. The assumption of bivalence for such sentences shows itself only in the acceptance of certain forms of inference, classically but not intuitionistically valid. Hence it would be unsurprising if the introduction into the language of logical constants, treated as subject to the classical laws, rendered it possible for us, on occasion, to derive the truth of an atomic statement which would not have been recognized without the use of argument: and thus the extended language would not be a conservative extension of the original one relative to our recognition of truth. ('Deduction', p.317)

But the fact that the classical rules of inference do not constitute a conservative extension of the atomic fragment, relative to a constructivist notion of truth, is not by itself grounds for criticizing the classical rules. It has to be shown first that the relation of deducibility which holds among formulas of the atomic fragment is to be explained in terms of this constructivist notion of truth. It is known that the classical rules of inference in a system of natural deduction meet the requirement of conservative extension, when the relation of deducibility which holds among formulas of the atomic fragment is explained in terms of classical³ truth. So how is Dummett to ground his assumption that the appropriate notion of truth for the atomic fragment is the constructivist notion?

The following passage tells us:

It will always be legitimate to demand, of any expression or form of sentence belonging to the language, that its addition to the language should yield a conservative extension; but, in order to make the notion of a conservative extension precise, we need to appeal to some concept such as that of truth or that of being assertible or capable in principle of being established, or the like; and just which concept is to be selected, and how it is to be explained, will depend upon the theory of meaning that is adopted. ('Philosophical Basis', p.222)

3. See Dag Prawitz, 'Ideas and Results in Proof-Theory', op.cit., p.256 and p.260

Dummett's strategy seems to be: first, to establish that assertibility, verification, or some notion other than classical truth should be the central notion in the theory of meaning; second, to argue that, given this fact, the appropriate notion of truth for the atomic fragment is a non-classical notion of truth; third, to argue that the classical rules of inference constitute a non-conservative extension of the atomic fragment relative to this non-classical notion of truth. (I shall discuss this strategy in greater detail in § 4)

I have argued, however, that Dummett's argument for repudiating classical truth as the central notion in the theory of meaning does not go through. Consequently, his argument for rejecting classical rules of inference, on the basis of their failure to meet the requirement of conservative extension, does not go through either.

In any case, since the argument for rejecting the classical rules of inference, on the basis of their failure to meet the requirement of conservative extension, depends for the support of its vital assumption on Dummett's argument for repudiating classical truth in the theory of meaning, it would be question-begging to appeal to the former argument as a defence against an objection of the kind I have lodged to the latter argument.

In conclusion, both lines of argument against my appeal to speakers' inferential abilities, as partly constitutive of use, do not succeed in showing that the appeal to these abilities does not form the basis of a sound objection to the manifestation form of the argument against realism.

The first line of argument against the appeal to these abilities was that a speaker could not acquire an understanding of the classical notion of

truth through a training in the use of classical rules of inference. My reply to this line of argument was to say that, all the same, a speaker can manifest his understanding of the classical truth-conditions of sentences through employment of classically valid inferences and that this is all that is needed to refute the manifestation form of the argument against realism.

The second line of argument against the appeal to inferential abilities was that, even if speakers' customary inferential practice is part of use, the practice is criticizable for not meeting the requirement of harmony between different aspects of use. My reply to this line of argument was that the claim that our customary employment of classical rules of inference does not meet the requirement of harmony depends upon the soundness of the argument against realism; so this second line of argument cannot, on pain of circularity, act as a defence of the argument against realism.

§2 Direct and Indirect Verifications

As a preliminary to developing a criticism of Dummett's verificationist theory of meaning, I must explain two distinctions Dummett makes: a particular distinction between demonstrations and canonical proofs and a more general distinction between direct and indirect verifications.

Constructivists have usually emphasized Gentzen's conjecture about the roles of introduction and elimination rules in a system of natural deduction for the reason that the introduction-rules, which, according to Gentzen's conjecture, give the meanings of the logical constants, run parallel with the informal intuitionistic explanation of the meaning of logical

⁴
 constants. The intuitionist informally explains the meaning of a logical constant by stating the condition for a construction to be a proof of a sentence which contains that logical constant as principal operator. The following table embodies the standard intuitionistic explanations⁵ of the meanings of the logical constants.

- (i) We have a proof of $\underline{A} \ \& \ \underline{B}$ iff we have a proof of \underline{A} and we have a proof of \underline{B} .
 - (ii) We have a proof of $\underline{A} \vee \underline{B}$ iff we have a proof of \underline{A} or we have a proof of \underline{B} .
 - (iii) We have a proof of $\underline{A} \rightarrow \underline{B}$ iff we have an effective procedure which, applied to a proof of \underline{A} , yields a proof of \underline{B} .
 - (iv) We have a proof of $\forall x \underline{A}(x)$ iff we have an effective procedure which, applied to a term t , yields a proof of $\underline{A}(t)$.
 - (v) We have a proof of $\exists x \underline{A}(x)$ iff we have a proof of $\underline{A}(t)$, for some term t .
- ($\neg \underline{A}$ is defined as $\underline{A} \rightarrow \underline{\bot}$, where $\underline{\bot}$ is the constant for absurdity.)

Now Dummett argues in a number of places that it is necessary to restrict the type of proof which enters into the above explanations ('Philosophical Basis', pp.239-242; Elements, pp.390-393) If the intuitionist does not restrict the type of proof to which his explanations of the logical constants appeal, then his explanation of the meaning of disjunction, in particular, will be incorrect. The intuitionist's explanation of the meaning of ' \vee ' is that we have a proof of $\underline{A} \vee \underline{B}$ just in case we have a proof of \underline{A} or we have a proof of \underline{B} . But in ordinary intuitionist practice, a construction

4. See Dag Prawitz, 'Meanings and Proofs: on the Conflict between Classical and Intuitionistic Logic', Theoria, XLIII (1977), p.25; 'Ideas and Results in Proof Theory', op.cit., pp.244-245

5. See A. Heyting, Intuitionism, (Amsterdam: North-Holland, 1956), pp.97-99; p.102

is considered to be a proof of $\underline{A} \vee \neg \underline{A}$, in the case where \underline{A} is decidable, even though it is not a proof of \underline{A} or of $\neg \underline{A}$. This is legitimate, in the intuitionist's view, if the construction supplies an effective procedure for finding a proper type of proof for one of the disjuncts.

So it is clear that the type of proof to which the intuitionist appeals in his explanation of disjunction cannot be the kind of construction which constitutes a proof of $\underline{A} \vee \neg \underline{A}$ without being a proof of \underline{A} or of $\neg \underline{A}$. This latter type of construction is what Dummett calls a demonstration. The informal proofs that are found in mathematical articles and text books are also demonstrations and they are to be distinguished from the canonical proofs which may enter into the intuitionist's explanation of the meaning of logical constants.

A similar argument for the need for this distinction could be based on the existential quantifier (See Elements, pp.391-392)

Dummett argues that reflection on the intuitionist's informal explanation of implication yields a deeper reason for drawing this distinction ('Philosophical Basis', p.241; Elements, pp.392-393) It is plain, he says, that the notion of proof being used in the intuitionistic explanation of implication is one which does not allow unrestricted use of the elimination rule for implication, namely modus ponens. For if it did, the explanation of the meaning of the constant would be vacuous. One could admit anything one likes as constituting a proof of $\underline{A} \rightarrow \underline{B}$, and it would remain the case that we have an effective which, applied to a proof of \underline{A} , yields a proof of \underline{B} . The effective procedure would consist simply of adding the proof of $\underline{A} \rightarrow \underline{B}$ to the proof of \underline{A} and

inferring \underline{B} by modus ponens. But this is not what the intuitionist intends by his explanation of implication. What he intends is that the proof of $\underline{A} \rightarrow \underline{B}$ should supply a means of converting a proof of \underline{A} into a proof of \underline{B} which does not appeal to any modus ponens which has $\underline{A} \rightarrow \underline{B}$ as major premiss. Once again the intuitionistic explanation of a logical constant must be couched in terms of a restricted type of proof.

A similar argument can be given for the claim that the intuitionistic explanation of the meaning of $\forall x \underline{A}(x)$ must be couched in terms of a restricted type of proof which does not have $\forall x \underline{A}(x)$ as the premiss of an application of the elimination-rule for the universal quantifier (universal instantiation). (See Elements, pp.393-394) This restricted type of proof which is needed for the intuitionistic explanations of implication and the universal quantifier is that of a canonical proof.

These arguments show that the biconditionals which express the intuitionist's explanation of the meaning of the logical constants should be framed in terms of canonical proofs. So we should replace 'proof' with 'canonical proof' at each of the occurrences of the former in both the left and right branches of the biconditionals (i) to (v). From now on when I refer to (i) and (v), I shall understand them as having been changed in this way. When we change the biconditionals and also add one stating when we have a canonical proof of an atomic formula, we have an inductive specification of a canonical proof. A suitable clause to cover the atomic case is the following:

- (vi) We have a canonical proof of an atomic formula \underline{A} iff we have a proof of \underline{A} in an atomic system S .

(An atomic system is determined by a set of individual, operational, and predicate constants and a set of inference rules which have atomic formulas as both premisses and consequences.⁶)

This inductive specification of a canonical proof, given by the clauses (i) to (vi), is precise. But we might ask what shape the canonical proof will have in the natural deduction system Gentzen developed for intuitionistic logic. It is natural to assume that there will be an inference-rule of the system corresponding to each of the inductive clauses. An inductive clause will constrain the corresponding inference-rule in this way: the consequence of the inference-rule will fulfil the condition stated in the left branch of its corresponding biconditional if the premisses meet the condition stated in the right branch of the biconditional. It is clear that only the introduction-rule for a logical constant can satisfy the constraint imposed by the inductive clause for that constant.

If we were considering only the rules for $\&$, \vee , \exists and \forall , we could describe a canonical proof as one consisting solely of applications of introduction-rules. The introduction-rule for implication, however, creates a problem. While the introduction-rule for implication satisfies the constraint imposed by inductive clause (iii), the condition for introducing \rightarrow in a natural deduction proof is weak: the sufficient condition for inferring $\underline{A} \rightarrow \underline{B}$ is that we have a deduction of \underline{B} from \underline{A} , where there are no constraints placed on this deduction. Such a deduction may consist of applications of

6. For further details about atomic systems see Prawitz, 'Ideas and Results in Proof Theory', op. cit., pp.242-243

elimination as well as introduction rules. This is to say that, although the introduction-rule satisfies the constraint imposed by the inductive clause for implication, there is a discrepancy between the meaning conferred on \rightarrow by this inductive clause and the meaning of \rightarrow conveyed by its introduction-rule in the system of natural deduction.

If we say that a formula occurring within a deduction is in the main stem of the deduction just in case it depends only on initial premisses and not on assumptionsto be closed, then one can describe a canonical proof, as given in Gentzen's natural deduction system for intuitionistic logic, as follows: a construction is a canonical proof if and only if its initial premisses are atomic sentences, its final conclusion is a sentence, and every complex sentence in the main stem is deduced from its immediate premisses by an introduction-rule.⁷

Now this description of a canonical proof holds good only for deductions in first-order logic. But Dummett wishes to apply the distinction between canonical proofs and demonstrations to all first-order mathematical proofs which are intuitionistically valid. It is a question of some complexity, which Dummett discusses at length in one place, whether it is legitimate to generalize the distinction in this direction. (Elements, pp.396-403) I shall not follow up this particular question. For Dummett thinks that the distinction can be generalized, not just for mathematical sentences

7. This description of a canonical proof is derived from Prawitz's discussion in Appendix A of 'Ideas and Results in Proof Theory', op.cit, pp.284-290 and from informal discussion by Dummett in an unpublished paper 'The Justification and Criticism of Logical Laws'.

but for all sentences, as the distinction between direct and indirect verifications. He explains the direct means of verifying a sentence in this way:

The direct means of verifying the statement is that which corresponds, step by step, with the internal structure of the statement, in accordance with that model of meaning for the statement and its constituent expressions which is being employed. The possibility of establishing the statement directly must be envisaged by anyone who grasps the meaning of the statement...('Deduction' pp.312-313)

Dummett says that the possibility of establishing a sentence by indirect means need not be envisaged by anyone who grasps its meaning. This is for the reason that

...[an indirect verification] will involve also statements which do not belong to that fragment of language, an understanding of which is essential to an understanding of the statement itself, statements which may therefore be of a greater complexity than it. ('Deduction'.p.313)

Dummett also characterizes the distinction between the direct and the indirect means of verifying a sentence in terms of the network model of language which Quine gives in his essay 'Two Dogmas of Empiricism'.⁸ Quine's model of language consists in an image of it as an articulated structure of deductively interconnected sentences. Quine employs this model in his attack on the positivist thesis that the verification of a sentence consists in a bare sequence of sense-impressions. The model is supposed to represent the intuitive claim that the process of verifying a sentence usually depends upon establishing deductive connexions with the other sentences.

8. in From a Logical Point of View, (New York, Harper Torchbooks, 1963) pp.20-46

In terms of Quine's model, Dummett characterizes the direct means of verifying a sentence, which, in his view, is recognizable by anyone who grasps the meaning of the sentence, as that means of verification which is fixed by the sentence's position in the network of sentences. At the periphery of the network, sentences are directly verified by observation and at the other extreme, at the centre of the network, sentences are directly verified by computation or deduction. An indirect means of verifying a sentence is one which does not proceed in the manner fixed by the sentence's position in the network. For example, a deduction of an observation sentence from general laws is an indirect verification of the sentence. (see 'Deduction', pp.298-299)

Now Quine has an additional purpose, besides that of attacking the positivist notion of verification, in advancing the image of language as a network of deductively interconnected sentences. His other purpose is to use the image as a model for his claim that there is no principal⁹ means of verifying a sentence which is constitutive of its meaning. Quine espouses holism: the meaning of a sentence just consists of all the possible means of verifying a sentence, including those which involve deduction from sentences more deeply embedded in the network. So, in fact, Dummett and Quine employ the image of language as a structure of deductively interconnected sentences for precisely contrary purposes: Quine employs it as an intuitive model of his holistic theory of meaning and Dummett employs it as an intuitive model of his molecular theory of meaning.

9. 'Two Dogmas of Empiricism', *ibid*, pp.37-46

Dummett rehearses in many places the belief that holism amounts to the denial that a systematic theory of meaning is possible. ('Philosophical Basis', pp.218-219; 'Deduction', pp.301-304; Elements, pp.365-367)

A systematic theory of meaning, in Dummett's view, must assign a meaning to every sentence, independently of other sentences in the language which do not contain its constituents. A molecular theory of meaning of the kind Dummett favours is a systematic theory of meaning in this sense: it analyzes the meaning of each sentence in terms of the condition for its direct verification, as determined by the conditions of direct verification for its constituents. Dummett says that such a molecular theory of meaning, in so far as it is systematic, will pick out one aspect of use and show how other aspects of use are in harmony with it; in particular, it will show how the direct verification of a sentence is in harmony with its possible indirect verifications. The direct and the indirect verifications are in harmony, Dummett says, just in case it can be shown that if a sentence has been indirectly verified it could have been directly verified. ('Philosophical Basis', pp.221-222)

One line of argument against Dummett might proceed by scrutinizing his claim that holism amounts to a denial that a systematic theory of meaning is possible. I do not wish to pursue this line, as I believe that there are particular criticisms that can be made of Dummett's conception of meaning and truth which show that they are flawed.

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10. Susan Haack adopts this line of argument in 'Dummett on the Justification of Deduction', (unpublished manuscript)

§3 Mathematical Truth and General Truth

A topic which crops up in several places in 'The Justification of Deduction' is the informativeness of deductive inference or, in other words, the way in which deductive inference increases our knowledge. ('Deduction', pp.299-300, pp.311-315) The principal way in which a deduction can be informative is by establishing a sentence as true.

Dummett's main interest in this topic seems to be to determine what constraint the informativeness of various kinds of deductive inference places on an anti-realist conception of truth. One way of interpreting Dummett's discussion is to see it as starting with a conception of truth, in particular a conception of mathematical truth, which he then revises to accord with the informativeness of the two kinds of mathematical proof, canonical proofs and demonstrations.

I suggest that the conception of truth Dummett starts with is this:

- (1) A mathematical sentence is true if and only if we possess an intuitionistically valid canonical proof of it.

The informativeness of canonical proofs accords well with this conception but the informativeness of demonstrations does not. In a case where we possess a demonstration of a sentence, but not a canonical proof, we still consider that the demonstration establishes the truth of the sentence. Yet this notion of truth does not square at all with (1). To allow for the informativeness of demonstrations one must weaken (1) as follows:

- (2) A mathematical sentence is true if and only if we possess ^{any} intuitionistically valid canonical proof or an intuitionistically valid demonstration of it.

An essential part of this characterization is that a proof which establishes a sentence as true must be an intuitionistically valid one. In 'The Justification of Deduction' Dummett refers to the possibility of a semantic characterization of intuitionistic validity. But the approach which Dummett can be seen as relying on in many places is a syntactic characterization of validity. The leading idea of this approach is that a canonical proof, as inductively specified by (i) to (vi) in §2, bears its validity on its face, as each step in such a proof proceeds in accordance with the intuitionistic explanations of the meanings of the logical constants. An arbitrary deduction is then defined as valid just in case we have an effective procedure for transforming it into such a canonical proof.

For the sake of simplicity, I shall consider in my discussion just the case of closed deductions, that is, deductions every assumption of which is closed and every parameter of which is proper. The intuitionistic validity of a closed deduction Π of a sentence A can be specified inductively by giving clauses for the case in which A is an atomic formula and the cases in which A is $B \& C$, $B \vee C$, $\exists x A(x)$, and $\forall x A(x)$. For any particular case, the induction clause runs like this: Π is valid iff we have an effective procedure for transforming Π into a canonical proof Π' of A .¹¹

11. Dummett adopts this approach to characterize validity in the unpublished paper 'The Justification and Criticism of Logical Laws'. The approach was developed by Prawitz; see Appendix A of 'Ideas and Results in Proof Theory', op. cit., where Prawitz gives the inductive definition of validity for closed deductions, described above, and then extends it to open deductions in the system $M(S)$, that is, the system of natural deduction the language of which is determined by the descriptive constants of the atomic system S and the rules of which are the rules of S and the minimal logic M . Prawitz says that his inductive definition covers intuitionistic validity, as the intuitionistic natural deduction system is identical to $M(S+)$, where $S+$ is the extension of S obtained by adding the intuitionistic absurdity rule.

Now this inductive specification of validity characterizes the notion of intuitionistic validity for any arbitrary proof, whether it be a canonical proof or a demonstration. In both cases we can say that, if we possess a proof of a sentence which is valid we also possess an effective procedure for obtaining a canonical proof of the sentence. In the case in which the proof we possess is a valid canonical proof this is clearly true: possessing such a proof, we thereby possess an effective procedure for obtaining its validity-guaranteeing canonical proof, namely itself. In the case in which the proof we possess is a valid demonstration this generalization is also true: the proof, together with the procedure for effectively transforming it into its validity-guaranteeing canonical proof, constitutes an effective procedure for obtaining this canonical proof. (In this case I shall say that the demonstration yields the effective procedure for obtaining the canonical proof.)

Taking note of this generalization and making the assumption that we can generalize the distinction between canonical proofs and demonstrations to all intuitionistically valid mathematical proofs, we can simplify the definition of mathematical truth given by (3). Combining this generalization with the fact that a / ^{mathematical} sentence is true only if we possess an intuitionistically valid canonical proof or demonstration of it, we can establish that a mathematical sentence is true only if we possess an effective procedure for obtaining a canonical proof of it. Since it is clear that if we possess an effective procedure for obtaining a canonical proof of a sentence then it is true, we can establish both directions of the following biconditional.

- (3) A mathematical sentence is true if and only if we possess an effective procedure for obtaining a canonical proof of it.

This is, in fact, the definition of truth which Dummett settles on in 'The Justification of Deduction' as the most satisfactory anti-realist conception of truth meeting the constraints imposed by the need to account for the informativeness and the validity of deductions. (In 'The Philosophical Basis of Intuitionistic Logic' Dummett also argues for this same conception of mathematical truth on the basis of different considerations. See pp.232-247)

It may be possible coherently to adopt a strongly idealist view, and equate the truth of a statement with its actual recognition as true, at least by indirect means. But, if epistemic advance by indirect deductive inference is to be possible, truth must go beyond recognition of truth by direct means alone; while, if we are not to fall into holism, it must have some definite relation to the direct means whereby the truth of the statement can be established, since that direct means reflects the content of the statement according to the model of meaning we have adopted. In the case of mathematical statements, the relationship can, if we are disposed to do so, be taken to be as close as this: that a statement is to be recognized as true only if we possess an effective means in principle of establishing its truth by direct means. ('Deduction', pp.313-314)

Now the conception of mathematical truth given by (3) is framed by Dummett to meet two constraints: the first constraint is that it allow for the informativeness of deductive inference and the second constraint is that it be compatible with an account of the validity of deductive inference. Dummett seems to propose in 'The Justification of Deduction' that demonstrations be treated as a special test case of the capacity of a conception of truth to meet these two constraints. The conception of truth embodied in (3) satisfies the constraints in the special case of demonstrations in the following way: it allows for the informativeness of demonstrations in that a demonstration can establish a sentence as true in the sense defined and it is compatible with an account of the validity of demonstrations in that any sentence established as true, in the sense defined, by a

demonstration could have been established as true, in the same sense, by a canonical proof. This last fact shows that the conception of truth embodied in (3) is compatible with the syntactic account of the validity of demonstrations in the sense that it is a necessary condition for a demonstration to be valid on this account that this fact obtain. For, if a demonstration of a sentence is valid on this account, we must have an effective procedure for obtaining a canonical proof of the sentence; consequently, it must be the case that if the sentence is established by the demonstration, it could have been established by a canonical proof (namely, the one which guarantees the demonstration's validity).

Dummett generalizes the definition (3) into a definition of truth for all sentences. A rough statement of the definition, to be modified later, is this:

- (4) A sentence is true if and only if we possess an effective procedure for obtaining a direct verification of it.

Generalizing the definition of mathematical truth, given in (3), into a definition of general truth, given by some clause like (4), is legitimate only if it can be shown that there should be constraints on the definition of general truth, analagous to the particular constraints in mathematical truth. Perhaps, if one can make sense of the distinction between direct and indirect verifications, one should admit that a general conception of truth should allow for the possibility that an indirect verification can establish a sentence as true. But in what sense is it legitimate to demand that a conception of general truth be compatible with the validity of indirect verifications? (This demand, of course, presupposes that all indirect verifications are deductions. I shall come back to this point.) In particular,

can one make out grounds for stipulating that an indirect verification of a sentence is valid if and only if we have an effective procedure for obtaining a direct verification of the sentence in the same way that one can make out grounds for stipulating that a demonstration is valid if and only if we have an effective procedure for obtaining a canonical proof of the same sentence? I believe that one cannot make out any such grounds. But before discussing this matter, I shall consider a particular example of an indirect verification and consider how the definition of truth, given by (4) applies to it.

An example of an indirect verification which Dummett himself gives involves the proof which Euler gave to the problem of the Königsberg bridges. ('Deduction', p.308) The conclusion of the indirect verification in Dummett's example is the sentence 'A person S has crossed at least one bridge at least twice' and the indirect verification itself consists of the direct verification of the premiss 'S has crossed every bridge' and an application of the general procedure involved in Euler's proof to prove the conditional 'If S has, on a certain day, crossed every bridge, then S has crossed at least one bridge at least twice'. This is an indirect verification because the direct means of establishing the sentence 'S has crossed at least one bridge twice' is not by deduction but by observation. But this indirect verification is cogent because it yields an effective procedure for obtaining the direct verification of the sentence. The procedure which the indirect verification yields is effective because the general procedure involved in Euler's proof embodies a method for effectively transforming any set of observations, directly verifying that S crossed every bridge, into a set of observations, directly verifying that S crossed some bridge twice. Dummett's idea seems to be that

one carries out the effective procedure for obtaining the direct verification of the sentence in question in this way: one takes the set of observations which verify the premiss 'S has crossed every bridge' and feeds them into the general procedure involved in Euler's proof, which rearranges them into a set of observations directly verifying the conclusion.
('Deduction', p.308)

The situation depicted in this example is unusual. It is only at the time at which I make the observations which verify the premiss 'S has crossed every bridge' that the indirect verification yields an effective procedure for obtaining a direct verification of the conclusion 'S has crossed some bridge twice'. This is because it is only at such a time that the set of observations directly verifying the premiss are sufficiently detailed to be transformed by the general procedure, involved in Euler's proof, into a direct verification of the conclusion. But at a time at which I have only memories of the observations verifying that S crossed every bridge or at any time in which I have to rely on the testimony of another person, the general procedure of Euler's proof will not deliver a direct verification of the conclusion. The reason is that the memories I have or the testimony I rely on might suffice to establish the premiss but might not be sufficiently detailed to act as input to the transformation which would otherwise give a representation¹² of the situation described by the conclusion.

This example shows the dangers of generalizing a mathematical thesis into a general empirical thesis without checking to see whether the change

12. I am using the word 'representation' in a semi-technical sense: I take an observation of, a memory of, or a belief about a configuration of objects to be representations of that configuration.

in subject-matter necessitates a modification of the thesis. The example bears out a disanalogy between the way in which a procedure for transforming representations of configurations of mathematical objects differs from a procedure for transforming representations of configurations of empirical objects. The former type of procedure can be carried out at any time because the configurations of objects are timeless and the representations of the configurations are reproducible at will; but with the latter type of procedure, there are restrictions on the times at which the transformation procedure can be carried out, due to the fact that configurations of empirical objects are transitory and representations of configurations are not reproducible at will.

The query I wish to raise is whether an indirect verification always yields an effective procedure for obtaining a direct verification. A modification of Dummett's own example shows that this is not the case. One might indirectly verify the sentence 'S crossed some bridge twice' on the strength of a deduction from the premiss 'S crossed every bridge', which one accepts on the basis of someone else's testimony, and the conditional, 'If S crossed every bridge, then S crossed some bridge twice', which one accepts on the basis of Euler's proof; yet in this case the indirect verification, as described, does not yield an effective procedure for obtaining a direct verification of the conclusion.

This example shows that the definition of general truth given by (4) is not correct. I believe that it is with some such example in mind that Dummett modifies his characterization of truth, when he generalizes it from the mathematical to the general case. Dummett actually characterizes truth in the general case, not by (4) as I supposed earlier, but as follows:

But, in the general case, we cannot demand a relationship as close as this: we should have, rather, to say that [a sentence is true if and only if] we possess an effective method for arriving at a direct verification of the statement, provided that we are given a sufficiently detailed set of observations. For example, Euler's proof gives us an effective general means for finding, from any

observation of the complete route which leads to a verification of the premiss, a verification of this conclusion: but, in a given case, we may have verified the premiss without having noticed or recorded the whole route in detail. ('Deduction', pp.313-314)

This new characterization of truth in the general case is not entirely clear. I understand it in this way:

- (5) A sentence is true at a certain time if and only if it is the case that we possess at the time an effective procedure for obtaining a direct verification of the sentence or if we had a sufficiently detailed set of observations at the time, we would possess an effective procedure for obtaining a direct verification of the sentence.

This discussion has been concerned with how closely Dummett can make the connexion between truth and our possession of an effective procedure for obtaining a direct verification. It seems that the connexion is closer in the mathematical case than in the general case. In the mathematical case the connexion arises naturally from the need to show that the definition of mathematical truth is compatible with the validity of demonstrations as well as canonical proofs. But why should there be a connexion at all in the general case? My conjecture is that Dummett requires the definition of general truth to be compatible with the validity of indirect verifications, where it is presupposed that all indirect verifications involve deduction. I am supposing that Dummett generalizes the syntactic account of validity in terms of the general notions of direct and indirect verifications. Under this generalization, an indirect verification is valid just in case it is effectively transformable into a direct verification. But does this generalized account of validity make sense? This is one of the questions which I shall consider in the next section.

§4 Problems Confronting Verificationism

I think it is appropriate at this point to step back and consider from a broader perspective the various theses and distinctions which have been discussed in the preceding sections of this chapter. From such a perspective we should be able to command a clear view of the way Dummett

marshals the theses and distinctions in defence of his verificationist theory of meaning.

In the last chapter I considered in detail Dummett's argument against taking the central notion in the theory of meaning to be classical truth, or, in other words, against taking the meaning of a sentence to consist in its classical truth-condition. Dummett's argument, or at least the manifestation form of it, relies heavily on the Wittgensteinian dictum that meaning should be exhaustively manifestable in use. I argued in the last chapter and again in §1 of this chapter that adherence to the Wittgensteinian dictum does not compel acceptance of Dummett's argument. Let us set this objection aside and consider how Dummett proceeds to elaborate a theory of meaning which he believes conforms to the Wittgensteinian dictum.

Dummett says that we should analyze meaning, not in terms of the conditions for the classical truth of sentences, but in terms of the conditions which conclusively verify sentences. ('Philosophical Basis', p.227; 'Theory of Meaning II', pp.110-111) (I shall overlook in this discussion Dummett's occasional remarks that falsification, and not verification, should be the central notion; see §2 of Chapter One for a discussion of these remarks. I shall also overlook Dummett's acknowledgement in his recent works that the conditions which verify empirical sentences may be inconclusive; see §3 of Chapter Four for a discussion of this recent development of his views.) Dummett thinks that a theory of meaning in terms of verification-conditions succeeds where a theory in terms of truth-conditions fails. While we cannot, in Dummett's view, sensibly credit a speaker with knowledge of an undecidable sentence's truth-condition, we can sensibly credit a speaker with knowledge of such a sentence's verification-conditions: for a speaker can effectively recognize when such conditions obtain or fail to obtain.

I believe, however, that a theory of meaning, couched in terms of the conditions which verify sentences, whether conclusively or inconclusively, faces perhaps insuperable difficulties. One of these difficulties concerns the fact that for every sentence there are many admissible verifications. At first sight, it seems that this fact should make every sentence multiply ambiguous: given the thesis that the meaning of a sentence just consists in the condition for its verification and the fact that the sentence has many admissible verifications, it seems to follow that the sentence has more than one meaning. On closer scrutiny, however, one sees that the conclusion only follows on the assumption that a sentence has an individual meaning which is independent of other sentences of the language. This assumption is repudiated by holists like Quine who assign a special place to verification in their discussions of meaning. As I remarked in §2, the image of language as a network of deductively interconnected sentences, which Dummett appeals to as the intuitive model for his verificationist theory of meaning, has been used by Quine and other holists to express their view that the meaning of a given sentence depends on all the other sentences of the language to which it may be inferentially related. A holist like Quine can sidestep the problem of ambiguity simply by saying that every possible verification of a sentence, whether it proceeds by observation or deduction, is constitutive of the sentence's meaning and this is not a special problem but is, rather, a general fact about the way a sentence of the language has meaning.

But Dummett wishes to retain the assumption that each sentence has an individual meaning which is independent of other sentences which do not contain its constituents; he declares over and over that holism amounts to a denial that a systematic theory of meaning is possible. So the question naturally arises of how he gets round the problem of ambiguity.

One can see Dummett's solution to this problem most clearly in the mathematical case. Here the solution resides in the distinction between canonical proofs and demonstrations. In §2 I outlined Dummett's arguments for supposing that the meaning of the intuitionistic logical constants must be specified in terms of canonical proofs. It turned out that the clauses specifying the meanings of the constants constitute an inductive definition of a canonical proof. The canonical proof of a sentence has the special property that it proceeds, step by step, in accordance with the meaning of the logical constants contained in the sentence; consequently, a grasp of the meaning of the sentence, as it depends on its logical structure, will involve envisaging the possibility of its being proved in the canonical fashion. So the meaning of a sentence of first order logic is tied directly to its canonical proof, if it in fact has one. This overcomes the problem of ambiguity: for while there are many possibilities of proving a sentence by a demonstration, it is only the possibility of establishing the sentence by its associated canonical proof that is constitutive of its meaning.

Dummett generalizes the distinction between canonical proofs and demonstrations in two steps: the first step involves the generalization of the distinction from first-order logic proofs to all mathematical proofs and the second step involves the generalization from the mathematical proofs to general empirical verifications. Although one might have qualms about the first step of the generalization procedure, I have chosen to focus on the second step. The analogue of a canonical proof in the general case is a direct verification; so the meaning of an empirical sentence is closely associated with the method for directly verifying it. Just as in the informal semantics of intuitionistic logic the meaning of a sentence is given by the condition for its canonical proof and this condition is given in turn by the conditions for the canonical proofs of the sentence's subformulas, so in the general

theory of meaning, the meaning of a sentence is given by the condition for its direct verification and this condition is given in turn by the conditions for the direct verifications of the sentence's constituents. ('Theory of Meaning II', p.115)

I wish to question the tenability of the general distinction between direct and indirect verifications. Dummett intends us to understand this distinction in terms of his adaptation of Quine's network model of language. In his adaptation, each sentence has a distinctive meaning which is fixed by its position in the network: the direct verification is that verification which is determined by the sentence's position in the network and an indirect verification is one which is not determined in this way. But once one tries to go beyond this schematic formulation of the distinction, it is difficult to find answers to particular questions. For example, what are the direct methods of verifying the sentences 'The sun is 93 million miles from the Earth', 'If Napoleon had not invaded Russia, he would have ruled Europe', and 'The neutron has quarks'? If the model of a network of deductively interconnected sentences is of any explanatory value, it should give us a method of explaining which chains of deductive connexions are those constituting the direct verifications of the sentences. But I claim it is very implausible to say that there are particular chains of deductive connexions recognition of which is constitutive of our understanding of sentences. At most, it can be said that, in understanding a sentence, we know only whether it can be verified by observation or not. For this reason Dummett's distinction applies only to observation sentences: it is only for these sentences that the contrast between a verification by observation and a verification which proceeds by other means can be made. In fact, the only examples which Dummett gives of how the distinction between direct and indirect verifications applies concern observation sentences. ('Deduction', p.299; p.308; 'Philosophical Basis', pp.220-221)

The fact that Dummett's distinction between direct and indirect verifications can be intelligibly attributed only to observation sentences means that the problem of ambiguity remains unsolved for all non-observation sentences. Any theory of meaning which retains the assumptions that each sentence has a content which can be specified independently of most other sentences of the language and that the content of each sentence is to be analyzed in terms of the conditions for its verification will be in tension with the fact that each sentence has countless admissible verifications, most of which involve deduction from other sentences. A natural way of resolving this tension is to say, as Dummett does, that each sentence is associated with a single special verification in terms of which its content is specified. But for any non-observation sentence it appears that the selection of the special content-giving verification will be quite arbitrary. In this case the only way to resolve the tension between the fact that each non-observation sentence has many verifications which involve deduction from other sentences and the assumption that the content of each sentence must be specified independently of most other sentences is to say that each verification confers a distinct content on the sentence, or, in other words, that the sentence is ambiguous.

Perhaps, it is a recognition of these facts which motivates philosophers like Quine to embrace holism as the only feasible conception of meaning within a verification framework. For Dummett, however, holism is not a philosophical option: in his view, holism rules out the possibility of revising aspects of our use of language. In Dummett's characterization of holism, every part of our use of a sentence, especially the inferences into which it may enter, is constitutive of the meaning of the sentence and hence sacrosanct. One can see that such a view would be unacceptable to Dummett: for he believes that a repudiation of the notion of classical

truth as the central notion in the theory of meaning in favour of some non-classical notion must entail a change in the logical laws and inferences we accept.

I believe it is a legitimate question to ask how Dummett can reconcile his proposal that we revise those parts of our use of language relating to our employment of classical rules of inference with his acceptance of the Wittgensteinian dictum that meaning is use. Dummett attempts to answer this question by saying that there is a need to systematize the various aspects of our inferential use and to show that they are in harmony. Two aspects of our inferential use that Dummett mentions are the conditions under which one is justified in making a statement and the consequences which one is entitled to draw from the statement's being made. (As I remarked in §1, these aspects are supposed to be generalizations of the roles played in a natural deduction system by the introduction and the elimination-rules.) Dummett says that these aspects are in disharmony when it can be shown that the addition of a statement to a set of sentences permits the deduction of a sentence which could not previously be deduced; in other words, these aspects are in disharmony when the addition of a statement to a set of sentences yields a non-conservative extension of the set. ('Philosophical Basis', p.221)

In §1 I discussed a claim which seems to be part of Dummett's argument for repudiating classical logic in favour of intuitionistic logic. The claim was that the addition of classical rules of inference to a set of natural language sentences, lacking any sentential operators, would constitute a non-conservative extension of the set. If this were in fact the case, this would show that the rules of inference are not in harmony

and are, consequently, subject to criticism and revision. But I pointed out that this claim could only be one part of the argument; for an additional premiss is needed to show that the deducibility-relation, in terms of which the notion of a conservative extension is to be defined, must be explained in terms of a non-classical notion of truth. The question then arises how this premiss, to the effect that a non-classical notion of truth, rather than a classical notion of truth, is the appropriate explanans of the deducibility-relation, is itself to be grounded. I quoted a passage from Dummett in which he claimed that this question is settled by the appropriate theory of meaning. To cut a long story short, I believe that Dummett's argument for repudiating classical logic in favour of intuitionist logic goes like this. The arguments against realism show that we should take verification, and not classical truth, as the central notion in the theory of meaning; given the notion of verification, we can define a notion of non-classical truth with which to explain the deducibility-relation and so argue that the addition of the classical rules of inference are a non-conservative extension of the atomic fragment of the language.

So the definitions of truth discussed in the last section constitute a vital part of Dummett's strategy for repudiating classical logic. Since Dummett believes that we should reject classical logic, not just for mathematical sentences, but also for empirical sentences, it is the definition of general truth embodied in (4), or rather (5), which is relevant to this strategy. I wish to consider here whether this definition makes much sense. In particular, I wish to raise the question of why we should believe that there is any connexion between truth and our possession, given sufficiently detailed observations, of an effective procedure for obtaining a direct verification. The definition given by (5) is modelled after the definition of mathematical truth given by (3). In this case,

the connexion between truth and our possession of an effective procedure for obtaining a canonical proof arises naturally from the syntactic account of the validity of demonstrations. On this account, a demonstration (that is, a non-canonical proof in first-order logic) is valid just in case it yields an effective procedure for obtaining a canonical proof of the same sentence. But is it at all sensible to extend this account and say that an indirect verification is valid just in case it yields an effective procedure for obtaining a direct verification?

I wish to set aside two issues which complicate the situation. The extension of the notion of validity in this way presupposes that all indirect verifications are deductions: this, of course, accords with the fact Dummett only applies the distinction between direct and indirect verifications to observation sentences. Let us for the moment ignore the fact that an indirect verification need not take the form of a deduction. The other complicating issue is that, even in the example of an indirect verification - the example of the Königsberg bridges - which lends itself most readily to Dummett's arguments, the account of validity has to be complicated to allow for the fact the indirect verification yields an effective procedure for obtaining a direct verification, only given a sufficiently detailed set of observations. Let us ignore this complication as well. For these two complicating issues are only symptoms of a more general problem with extending the syntactic account of validity in the way that Dummett must suppose. This general problem is that the syntactic account of validity makes sense in the area of first-order logic where the notion of a canonical proof and a demonstration are well-defined; but when these notions are generalized into the notions of direct and indirect verifications, the syntactic account ceases to have a clearcut sense. For example, suppose that, after measuring the pressure and volume of a certain

body of gas, I deduce from the ideal gas law that it has a certain temperature. It is obscure, even supposing that I possess sufficiently detailed observations, how the indirect verification, consisting in the deduction from the gas law, could be effectively transformed into a direct verification, consisting in an observation.

The heart of my criticism is that Dummett inappropriately generalizes a notion which properly belongs to formal logic. This criticism could be made of the way Dummett generalizes many other logical concepts and distinctions; for example, the notion of conservative extension and the distinction between introduction and elimination-rules. But I chose to make this particular criticism because, without a generalization of the syntactic account of validity, Dummett has no grounds for modelling the definition of empirical truth after the definition of mathematical truth in (3) and without some such definition of truth in terms of verification, the path from his acceptance of a verificationist theory of meaning to a rejection of classical logic is by no means clear. Dummett's strategy for rejecting classical logic is, first to argue that the theory of meaning should be given in terms of verification and then to define a notion of truth in terms of verification with which to explain the deducibility-relation. I believe my arguments cast doubt on whether Dummett's definition of truth in terms of verification can be seriously motivated.

CHAPTER FOUR

ANTI-REALISM AND REALITY

In previous chapters anti-realism has been characterized solely as the thesis that meaning should not be analyzed in terms of the notions of truth and falsity which obey the principle of bivalence. In this chapter I shall fill in some more details of the characterization of anti-realism by examining a range of claims that Dummett makes concerning the anti-realist's conception of reality. I shall try to show at appropriate places how these claims connect up with the arguments from the theory of meaning considered in Chapter Two.

In §1 I shall consider Dummett's claim that reductionism is neither necessary nor sufficient for anti-realism. I shall argue that there is a sense in which reductionism is necessary and claim that there is a way of uniformly characterizing anti-realist positions on a number of subjects in terms of the thesis that a sentence is true in virtue of the evidence existing for it. In §2 I shall consider Dummett's claim that a realist interpretation of counterfactuals involves asserting the unrestricted validity of the law of conditional excluded middle. In §3 I shall argue that the anti-realist cannot acknowledge the defeasibility of evidence for empirically undecidable sentences and at the same time meet a legitimate demand that he explain in terms which do not beg any questions his conception of truth for such sentences.

§1 Reductionism

In the article 'Realism' Dummett first announced a programme for reinterpreting a range of metaphysical disputes relating to different subject-matters.

In the article he reinterprets each dispute as a conflict between a realist

and an anti-realist view of the truth-conditions of a class of sentences.

This class of sentences Dummett calls the disputed class. He characterizes realism and anti-realism in the most general way as follows:

Realism I characterize as the belief that statements of the disputed class possess an objective truth-value, independently of our means of knowing it: they are true or false in virtue of a reality existing independently of us. The anti-realist opposes to this the view that statements of the disputed class are to be understood only by reference to the sort of thing which we count as evidence for a statement of that class. That is, the realist holds that the meanings of statements of the disputed class are not directly tied to the kind of evidence for them that we can have, but consist in the manner of their determination as true or false by states of affairs whose existence is not dependent on our possession of evidence for them. The anti-realist insists, on the contrary, that the meanings of these statements are tied directly to what we count as evidence for them, in such a way that a statement of the disputed class, if true at all, can be true only in virtue of something of which we could know and which we should count as evidence for its truth. The dispute thus concerns the notion of truth appropriate for statements of the disputed class; and this means that it is a dispute concerning the kind of meaning which these statements have. ('Realism', p.146)

I shall say that realism and anti-realism, as characterized by this passage, are global realism and anti realism. A local realism or anti-realism¹ is an instantiation of the global sort in a particular dispute. Among the particular disputes Dummett considers are the dispute between the common-sense realist and the phenomenalist over sentences about material objects, the dispute between the scientific realist and the positivist over sentences about unobservable phenomena, the dispute between the platonist and the constructivist over mathematical sentences, the dispute between the mental realist and the behaviourist over sentences about mental states, events, and processes, and the dispute between realist and anti-realist over sentences about the past and the future.

1. I shall adopt Dummett's terminological expedient of treating 'realism' and 'anti-realism' as common nouns, capable of taking plurals.

Dummett says in the Preface to Truth and Other Enigmas that he intended to say in 'Realism' and other articles that the abstract structure of each dispute was the same only in so far as the local realisms and anti-realisms were instances of the global conceptions. ('Preface', pp.xxx-xxxi) Apart from the fact that they are instances of a common global conception, local realisms differ considerably from each other and the same is true for local anti-realisms. In particular, Dummett says that it is a mistake to suppose that all local anti-realisms are reductionist. It was an error made by traditional interpretations of the metaphysical disputes to view each local anti-realism as maintaining a reductive thesis.² I shall assume that a reductive thesis has the form:

(1) Sentences of class K reduce to sentences of class R

where K is the disputed class of sentences and R is what Dummett calls the reductive class of sentences. Dummett holds that it is neither necessary nor sufficient for a position to be anti-realist that it maintain a reductive thesis. ('Realism', pp.156-157, 'The Reality of the Past', pp.359-362)

The fact that a local anti-realism need not be reductionist follows from a condition Dummett imposes on reduction, Dummett assumes that if the sentences of a disputed class K reduce to sentences of a reductive class R it must be the case that

(2) Sentences of class R are intelligible independently of sentences of class K.

Now one part of the traditional interpretation of a local anti-realism which Dummett takes over is that the sentences belonging to a reductive class express the existence of what would ordinarily be thought of as evidence for sentences of the disputed class. For example, the sentences to which the

2. A good example of a traditional interpretation of some of the metaphysical disputes Dummett considers is A.J. Ayer's, The Problem of Knowledge, (Harmondsworth: Penguin Books, 1969). Ayer characterizes the position in each dispute which Dummett would call anti-realist as a reductionist one; see pp.79-80, 82-83, and 118-29. Also see C.H. Whiteley, 'Epistemological Strategies', Mind, LXXVIII (1969), pp.25-34

traditional anti-realist about the past thinks that the disputed sentences reduce state the existence of evidence, some of it in the form of memories, for the sentences about the past; and the sentences to which the traditional anti-realist about the future thinks that the disputed sentences reduce state the existence of evidence, some of it in the form of intentions, for sentences about the future.

Just because Dummett agrees with the traditional interpretation of the character of sentences belonging to a reductive class, he asserts that contrary to the traditional interpretation, the local anti-realisms about the past and the future cannot be reductionist. Sentences about the past and the future cannot reduce to sentences about memories and intentions: such reductions would violate the condition stated in (2). For one cannot state, Dummett says, that a person has a certain memory without specifying what the memory is of nor can one state that a person has a certain intention without specifying what it is an intention to do. I take it that what Dummett is saying is that the only way in which to express the sentences stating the existence of evidence, in the form of memories, for the sentence 'It was the case that p' is some variant of 'S remembers that it was the case that p' and the only way to express the sentence stating the existence of evidence, in the form of present intentions, for the sentence 'It will be the case that p' is some variant of 'S intends to bring it about that it will be the case that p'. Certainly if this is true, then the sentences of the reductive/^{classes} stating the existence of memories and intentions will not be intelligible independently of the sentences of the disputed classes. (I shall come back to this point)

Dummett also argues that it is not sufficient for a position to be anti-realist that it embrace a reductive thesis. His argument is based on the fact that a local realism may embrace a reductive thesis. For example, a realist might propose a reduction of sentences about character-traits to sentences about physiological constitution such that to each character-trait there corresponds a determinate physiological condition, which is either present in or absent from each individual at any given time. This reduction would justify the principle of bivalence for the disputed class of sentences and could not be thought of as sustaining anti-realism about character-traits.

A necessary condition for anti-realism about a class of sentences is, in Dummett's eyes, a denial that the principle of bivalence applies to sentences of the class. In some cases, an anti-realist may support his denial of bivalence for a class of sentences by arguing that the sentences reduce to sentences of another class and that the reduction does not sustain bivalence for the sentences in question. For example, Dummett argues that sentences about character reduce to sentences about behaviour and the reduction takes such a form that a situation may arise in which there is no true sentence about a man's behaviour which would render true, at a particular time, the sentence 'S is generous' nor any true sentence about his behaviour which would render true, at that time, the sentence 'S is not generous'. In this way, Dummett employs the reduction to reject the realist's insistence that the sentence 'S is generous' must be either true or false, that S must, at a given time, either possess or lack the character-trait of generosity. So a local anti-realism may embrace a reductive thesis for sentences of a disputed class but what distinguishes the reduction as anti-realist is the fact that it does not sustain the principle of bivalence for the sentences of the class.

Dummett makes ready use of the notion of reduction in discussing the relationship between anti-realism and reductionism. But how exactly is this notion to be understood? In the passages in which Dummett discusses reductionism he specifies that sentences of a class K reduce to sentences of class R just in case the following condition holds:

- (3) For every sentence A of K, there is a sentence A' of R such that A is true if and only if A' is true. ('Theory of Meaning II', p.94; 'Realism', p.156; 'Reality of the Past', p.360)

Dummett says in the cited passages that a reduction need not be full-blooded in the sense that it requires sentences of the disputed class to be translatable into sentences of the reductive class. Such a requirement could not be met in cases in which a disputed sentence A is correlated with a sentence A' which is compounded out of an infinite number of other sentences. The essence of a reduction is, not that A be translatable into A', but that A if true at all, be true in virtue of the truth of A'.

All that needs to be maintained by a reductionist is that, whenever any statement of the disputed class is true, it is true in virtue of the truth of some statement of the reductive class, that the notion of truth as applied to statements of the disputed class is simply given by means of the connection with the reductive class, so that it makes no sense to suppose that a statement A of the disputed class is true without there being a corresponding true statement of the reductive class, in the truth of which A, in the particular case, consists. ('Reality of the Past', pp.360-361)

I believe it is clear that Dummett's definition of reduction does not capture the idea what whenever a sentence belonging to a disputed class which is the subject of a reductive thesis is true, it is true in virtue of the truth of a reductive sentence. Dummett's definition merely states that, when a reductive thesis applies, a disputed sentence is true under the same circumstances as a reductive sentence. As far as the definition goes, a sentence A' of R might be true in virtue of the truth of the sentence A of K. Dummett's definition is inadequate, as it stands, because it does not express

any asymmetry between the disputed sentences and the reductive sentences in terms of which the direction of reduction can be fixed.

What is the relevant asymmetry between disputed and reductive sentences?

Dummett never explicitly formulates the asymmetry and so we must probe his intentions. A clue is offered by Dummett's remarks about the character of disputed sentences which reduce to reductive sentences and the character of disputed sentences which do not. In 'The Reality of the Past' Dummett says that when disputed sentences are the subject of a reductive thesis their truth-conditions are expressed by the corresponding reductive sentences and when disputed sentences are not the subject of a reductive thesis their truth-conditions are ones which a speaker can simply recognize whenever they obtain without his having any means of expressing the fact that they obtain otherwise than by the use of the disputed sentences themselves. ('Reality of the Past', p.359; p.361)

These characterizations of the two types of disputed sentences are very reminiscent of Dummett's characterizations of sentences the truth-conditions of which can be known explicitly and sentences the truth-conditions of which can be known implicitly. (see §2 of Chapter Two for the distinction between implicit and explicit knowledge of truth-conditions.) I argued in Chapter Two that Dummett believes that it is a sentence's position in a partial ordering of sentences which determines whether its truth-condition can be known explicitly or implicitly. The partial ordering itself is determined by the relation 'An understanding of ____ depends upon an understanding of ...', where this relation holds between two sentences, A and B, just in case one must have already learnt the meaning of the B in order to grasp the meaning of A. Dummett intends this partial ordering to be a model of a speaker's progressive acquisition of language.

My conjecture is that, in determining the appropriate model for a speaker's knowledge of a sentence's truth-condition, this partial ordering thereby determines whether the sentence, on the supposition that it belongs to a disputed class, reduces to a reductive sentence or not. If my conjecture is correct, it will yield an answer to the question of what the relevant asymmetry is between disputed and reductive sentences. In his discussions Dummett usually assumes that an understanding of a sentence the truth-condition of which is known explicitly depends upon an understanding of the sentence which states that truth condition. So, presumably, an understanding of a disputed sentence which is the subject of a reductive thesis depends upon an understanding of the correlated reductive sentence. If this is the case then the relevant asymmetry between disputed and reductive sentences which fixes the direction of reduction can be formulated as follows:

- (4) An understanding of the sentences of K depends on an understanding of the sentences of R.

This relation between disputed and reductive sentences is of the right kind to fix the direction of reduction, as the relation must, by definition, be antisymmetric in order to determine the partial ordering of sentences. So another conjecture is that clause (3), together with clause (4), when it is understood to be couched in terms of a relation which is reflexive, transitive, and antisymmetric, constitute a definition of reduction which is consonant with Dummett's intentions.

This conjecture about the definition of reduction explains many of Dummett's remarks.

First, it explains his imposition of clause (2) as a condition on reduction. If a disputed sentence reduces to a reductive sentence in virtue of the fact that an understanding of the disputed sentence depends on an understanding

of the reductive sentence, then the reductive sentence must, if the reductive is to be genuine, be intelligible independently of the disputed sentence. Clause (2) ensures that the relation which determines the direction of reduction is antisymmetric. But it is unnecessary as a clause in the definition of reduction because it is implied by clause (4) when this clause is understood under the stipulation that the relation it expresses is reflexive, transitive, and antisymmetric.

Secondly, my conjecture about the definition of reduction explains Dummett's numerous remarks, made in the context of discussions of reductionism, that sentences ascribing dispositions to people or objects reduce, in certain circumstances, to counterfactuals about the overt behaviour of the people or objects. The categorical sentences reduce to counterfactuals, Dummett says, only if we learn to assert them, as in fact we do, in terms of the conditions under which we can assert the corresponding counterfactuals. (See in particular 'Theory of Meaning II', pp.92-93) In other words, the categorical sentences reduce to counterfactuals only if an understanding of the categorical sentences depends on an understanding of the corresponding counterfactuals. So it seems that in these discussions about dispositional sentences Dummett assumes some condition like (4) as necessary for reduction to counterfactual form. (I shall discuss more textual evidence confirming my conjecture about Dummett's definition of reduction in the third section.)

If Dummett does indeed assume some such clause as (4) in his construal of reduction, then his construal of the notion of reduction is heir to the objection I lodged in §4 of Chapter Two to the partial ordering of sentences determined by the relation 'An understanding of ____ depends on an understanding of ...'. I objected in that section of Chapter Two that there can be no such partial ordering of sentences: the appropriate relata of the relation

are words and not sentences since words and not sentences are the units of linguistic acquisition.

Besides this objection, I believe there is another objection to including any such clause as (4) in the definition of reduction. The inclusion of clause (4) makes reduction depend upon a semantic relation holding between sentences; but reduction, I believe, is a metaphysical or ontological matter. Dummett seems to acknowledge this point when he says that reductionism ^{need to} does not/involve any thesis about the translatability of sentences of one class into sentences of another.

Reductionism does not, of course, have to take the strong form of asserting the translatability of statements of one class into statements of another; it is fundamentally concerned with the sort of thing which makes a statement of a given class true, when it is true. ('Theory of Meaning II', p.94)

Now a definition of reduction will state that sentences of one class reduce to sentences of another class under certain circumstances. Despite the linguistic formulation of reduction, its actual import lies in the metaphysical view of the world which the linguistic relation between sentences reflects. The import of a given reduction of a disputed sentence to a reductive sentence is that there is no fact which makes the disputed sentence true over and above the fact which makes the reductive sentence true; or, to employ Dummett's favoured mode of expression, when the disputed sentence is true, it is true in virtue of the truth of the reductive sentence. . Clause (3) of the ^{part of} postulated definition of reduction expresses/the metaphysical import of reduction. For this reason it is unobjectionable. Clause (4), on the other hand, is objectionable for intruding semantic considerations into a metaphysical question. Whether one sentence reduces to another is determined, not by semantic considerations such as whether one must have learnt the reductive

sentence in order to grasp the meaning of the disputed sentence, but by the metaphysical consideration of whether there is in the world anything over and above the fact which makes the reductive sentence true which could make the disputed sentence true.

If we reject clause (4) in the postulated definition of reduction on the grounds that it makes reduction depend on intrusive semantic considerations, then we should also reject the weaker clause (2) on the same grounds. But it is on the basis of clause (2) that Dummett argues that reductionism is not necessary for anti-realism. For example, Dummett makes the dubious claim that one can only express the existence of evidence, in the form of memories and intentions, for the sentences 'It was the case that p' and 'It will be the case that p' by some variants of 'S remembers that it was the case that p' and 'S intends to bring it about that it will be the case that p' and, consequently, these latter sentences, which would otherwise be the reductive sentences in the disputes about the reality of the past and the future, are not intelligible independently of the former sentences, which are the sentences under dispute. Thus clause (2) is not met in these cases and Dummett concludes that the local anti-realisms about the past and the future are not reductionist in form.

But seeing reductionism from the metaphysical perspective makes one doubt Dummett's conclusion. His claim about the failure of the sentences expressing the existence of memories or intentions to satisfy clause (2) seems to be orthogonal to the issue of whether the anti-realist should say that what makes a sentence about the past or the future true is the evidence existing for it. After all, it seems to be a contingent fact about our language, if it actually is a fact, that we can only express sentences stating the existence of memories or intentions by employing sentences about the past or

the future. If we had a name for each piece of evidence, as in mathematics where we sometimes give proofs names, for example Euclid's proof, then we would have a way of referring to a memory or an intention without describing the content of it. In this case, clause (2) would not pose an obstacle to interpreting the local anti-realisms about the past and the future as being reductionist in form. But, it seems that a condition, postulated as necessary for reduction, which can be met by a mere change in contingent features of our language does not have any bearing on the question to which the reductionist must provide an answer: In virtue of what are sentences about the past and future, and, more generally, sentences of any disputed class, true?

I am claiming that reductionism is a metaphysical, and not a semantic, matter in the following sense: to say that one sentence reduces to another is to say that the sentences have the same truth-condition, but this is not to say that they have the same meaning. This way of expressing the content of a reductive claim may seem paradoxical; but this is only because it is assumed that the meaning of sentences is to be analyzed in terms of classical or non-classical truth-conditions. Dummett expresses this assumption as the thesis that there is one central notion in the theory of meaning, namely truth, by means of which all the different aspects of meaning or use can be determined. This thesis informs Dummett's conception of the theory of meaning as consisting of two major parts. One is the central part which gives the theory of reference, conceived of as a classical or non-classical truth-theory yielding an inductive specification of truth-conditions, and the theory of sense, conceived of as a series of correlations between practical abilities and T-sentences. The other is the supplementary part which consists of a number of general principles embodying uniform methods of deriving every aspect of a sentence's meaning or use from its

truth-condition, as laid down by the central part of the theory. ('Theory of Meaning II', p.75)

In Chapter Two I found fault with Dummett's arguments that the theory of sense constrains the theory of reference in such a way that the notion of truth employed by the truth-theory must be non-classical. But these objections I lodged were ones of detail. What I am now considering is that Dummett's whole way of looking at the theory of meaning is mistaken. Dummett never produces any argument for the assumption that the theory of meaning must have a central notion in the way described. It is certainly not a priori truth that the theory of meaning should be given in this way. In Chapter Two my objections to Dummett's arguments led to another picture of the way a theory of meaning might be given. In this picture there was no central notion of the kind that Dummett envisages: the theory was subdivided into a whole range of sub-theories, each providing a theoretical representation of some separate linguistic competence .

Picturing the theory of meaning in this way does not involve denying truth a place in the theory. For example, the sub-theory which is supposed to provide a theoretical representation of our inferential abilities, that is, our abilities to judge whether informal arguments are valid or not, will employ a notion of truth. For, a convenient way of providing a theoretical representation of these abilities is to assign a truth-condition to each sentence as its inference-potential, that is, its capacity to combine with other sentences in valid inferences. Since the inference-potential of a sentence is determined, in part, by its structure, the truth-condition of a sentence will be determined, in part, by its inferentially relevant structure. In this sub-theory the role of truth is necessitated by the nature of the particular competence which the sub-theory is supposed to model. But there

is no reason for supposing that the necessity for a notion of truth in this sub-theory will carry over into other sub-theories.

My claim that there is no central notion to the theory of meaning of the kind that Dummett envisages, or more loosely, meaning need not be analyzed in terms of classical or non-classical truth-conditions, amounts to a proposal for reidentifying realism and anti-realism. Up until now I have followed Dummett in identifying realism about sentences of a disputed class with the thesis that the meaning of the sentences should be analyzed in terms of the notions of truth and falsity which obey the principle of bivalence and in identifying anti-realism with a denial of this thesis. While I still believe that an acceptance of bivalence for sentences of a disputed class is characteristic of a local anti-realism and a rejection of bivalence for the sentences is characteristic of the corresponding local anti-realism, I believe that the notion of meaning is irrelevant to the characterizations of these positions. To mimic the first passage quoted from Dummett in this chapter: a local realism is correctly identified with the thesis that the conditions for the truth of the disputed sentences consist in objective states of affairs which obtain or fail to obtain, regardless of the evidence we possess for them and a local anti-realism is correctly identified with the thesis that the conditions for the truth of the disputed sentences consist in our capacity to possess evidence for the sentences. Consequently, a dispute between realist and anti-realist concerns the notion of truth appropriate to the disputed sentences. But it does not follow from this that it is a dispute concerning the kind of meaning which these sentences have.

The claim that meaning must be analyzed in terms of classical or non-classical truth-conditions is most implausible in discussions of reductionism. To take Dummett's own example, a realist may propose a reduction of sentences

about character-traits to sentences about physiological conditions in order to justify his claim of bivalence for the former sentences. His proposal of a reduction embodies the claim that a sentence about somebody's character at a particular time has the same truth-condition as a sentence about the person's physiological condition at that time; but it would be absurd to view the realist's proposal of a reduction in this case as involving the claim that the sentences have the same meaning. I believe that a reductive claim, whether made by realist or anti-realist, must be seen to be independent of semantic considerations. In particular, I agree with Dummett on the point that reductionism does not need to take the form of a thesis about translation: a reduction maps disputed sentences onto reductive sentences with the same truth-conditions but does not require them to have the same meaning.

I think that when we see reduction as a purely metaphysical matter, there is a sense in which we can view all local anti-realisms as being reductionist. If we abandon, as seems reasonable in view of the arguments above, clauses such as (2) or (4) in the definition of reduction, then we can frame the following simple characterization of any local anti-realism: a local anti-realism involves the thesis that the disputed sentences reduce to reductive sentences in the sense that there are no facts which make the disputed sentences true over and above the facts which make the reductive sentences true. For reasons given above, this uniform characterization of local anti-realisms is not intended to be an endorsement of the traditional view that all local anti-realisms involve the claim that the disputed sentences are translatable into reductive sentences. In order to avoid the traditional associations of the term 'reduction' I shall in future employ the term 'quasi-reduction' in discussing the uniform characterization of local anti-realisms.

Before we can understand what this uniform characterization comes to I need to define the notion of quasi-reduction. Part of what it means to say that a disputed sentence quasi-reduces to a reductive sentence is to say that they have the same truth-condition. So clause (3) of the definition of reduction which I attributed to Dummett can be retained. But I also need to settle on some asymmetry-creating relation between disputed and reductive sentences, in place of that expressed by clauses (2) and (4), with which to fix the direction of quasi-reduction.

Traditional interpretations of local anti-realisms have usually had an anti-sceptical motivation³; consequently, the asymmetry-creating relation has usually been one which assigns some kind of epistemological priority to reductive sentences over disputed sentences. The reductive sentences, in a traditional interpretation of a local anti-realism, invariably correspond to effectively recognizable facts. The disputed sentences, on the other hand, are problematic for the anti-realist just because they purport to correspond to facts which are not effectively recognizable. I suggest, then, that we employ the difference with respect to effective recognizability between the facts expressed by the reductive sentences and the facts expressed by the disputed sentences to fix the direction of quasi-reduction. Adopting the linguistic mode of description, we can express the appropriate clause expressing the asymmetry between the types of sentences like this:

(5) Sentences of R are decidable and sentences of K are undecidable.

So my definition of quasi-reduction is this: the sentences of K quasi-reduce to sentences of R just in case the conditions stated in (3) and (5) hold.

3. See A.J. Ayer, The Problem of Knowledge, op.cit., pp.75-81

I believe that all local anti-realisms conform to a certain pattern, in that all involve the thesis that the disputed sentences quasi-reduce to certain reductive sentences. Moreover, I believe that when one ignores Dummett's comments about reduction and dislodges the semantic accretions from his characterization of anti-realism, one can see that Dummett's interpretations of local anti-realisms in his past works conform to this pattern. (As I shall argue in §3, Dummett makes remarks in his most recent works which constitute a radical deviation from this pattern) In the disputes which Dummett considers in the article 'Realism' the anti-realist singles out a class of privileged sentences which describe facts constituting evidence for the disputed sentences. For example, the phenomenalist⁴ singles out sentences reporting actual observations or sense-datum experiences, the positivist singles out sentences about observable phenomena such as pointer-needle readings, the constructivist singles out sentences stating the existence of proofs, the anti-realist about the past singles out sentences stating the existence of memories and other forms of records about past events, and the anti-realist about the future singles out sentences stating the existence of intentions and tendencies in the course of events. In all these cases the sentences which the anti-realist singles out as privileged are decidable, or in other words, they describe effectively recognizable facts; they may be seen as constituting the reductive sentence to which the disputed sentences quasi-reduce.

Let me sum up the conclusions of this section. I have argued that Dummett's construal of the notion of reduction is in error: the antisymmetric relation

4. As Dummett makes clear in 'Realism', though he expresses the point differently, phenomenalism does not have to take the form of asserting that every material-object sentence quasi-reduces to a sentence couched in sense-datum language; phenomenalism may simply say that material-object sentences quasi-reduce to sentences reporting observations which have actually been made. (See 'Realism', pp.157-159)

which I have conjectured it involves is not suitable for defining the reduction of one sentence to another sentence and makes reduction depend upon irrelevant semantic factors. I have also argued, contra Dummett, that there is a sense in which all local anti-realisms are reductionist. I have defined a notion of quasi-reduction which captures the essential metaphysical import of reduction and omits the irrelevant semantic considerations which intrude on Dummett's conception of reduction. By appealing to this notion of quasi-reduction, I have argued, in a way which seems to accord with Dummett's own remarks about various local anti-realism, that all local anti-realisms can be uniformly characterizable as involving the following thesis: disputed sentences quasi-reduce to reductive sentences in the sense that what makes the former true is just what makes the latter true.

§2 Counterfactuals and Character-Traits

In 'What is a Theory of Meaning? II' Dummett lists the different sentence-forming operations which he thinks are chiefly responsible for our capacity to frame undecidable sentences. The list consists of the past-tense, quantification over unsurveyable or infinite totalities, and the counterfactual. (p.98) The undecidable sentences which result from the first two sentence-forming operations belong to disputed classes of sentences discussed in the last section: past-tense sentences obviously are the subject of the dispute between the realist and the anti-realist about the past and sentences quantified over infinite totalities, depending on whether they are empirical or mathematical, are the subject of the dispute between the scientific realist and the positivist or the dispute between the platonist and the constructivist. Counterfactuals, on the other hand, do not belong to the disputed class of sentences for any particular dispute between the realist and anti-realist. The significance of counterfactuals lies in the fact that, in Dummett's view, sentences belonging to most disputed classes are

equivalent in content, under certain circumstances, to counterfactuals.

('Realism', p.148-149; pp.160-163; 'Theory of MeaningII', p.90)

Since counterfactuals do not belong to any one disputed class, anti-realism about counterfactuals is anomalous with respect to the pattern of local anti-realism I sketched in the last section. So I shall devote this section to considering the anti-realist interpretation Dummett gives to counterfactuals and the way he tries to rebut a realist interpretation of them.

To begin with, consider a favourite example of Dummett's concerning the sentences

(6) Jones was brave.

(7) Jones was not brave.

Dummett says that if ever Jones was in a dangerous situation and acted bravely then we can assert (6); and if ever he was in a dangerous situation and did not act bravely then we can assert (7). But Dummett has us suppose that Jones, who is now dead, never encountered danger in his life. In this case, Dummett says, (6) and (7) are equivalent in content to (8) and (9) respectively.

(8) If Jones had been in a dangerous situation, he would have acted bravely.

(9) If Jones had been in a dangerous situation, he would not have acted bravely.

Dummett uses these equivalences in ^{an} argument against a realist interpretation of (6) and (7). The argument runs like this: It might be the case that however many facts we know of the kind which we normally count as grounds for asserting a counterfactual about a person's behaviour, we still know nothing which justifies the assertion of either (8) or (9). But, on the supposition that Jones never encountered danger in his life, (6) is equivalent to (8) and (7) is equivalent to (9). Consequently, it might be

the case that we might know nothing which justifies the assertion of either (6) or (7). In short, since a situation may arise in which we are not entitled to assert

(10) If Jones had been in a dangerous situation, he would have acted bravely or if Jones had been in a dangerous situation, he would not have acted bravely.

a situation may arise in which we are not entitled to assert

(11) Jones was brave or Jones was not brave.

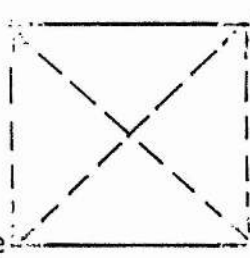
(See 'Truth', pp.14-16; 'Postscript to Truth', p.23; 'Realism', pp.148-150)

As this argument stands, it is not likely to be compelling against a person who adopts a realistic interpretation of 'Jones was brave'. The realist may reply that, while we may never know sufficiently many facts to justify asserting either 'Jones was brave' or 'Jones was not brave', all the same 'Jones was brave' is either true or false. For this argument to be compelling, Dummett needs to make the assumption, which the realist is bound to reject, that a sentence is true only in virtue of facts of the kind which we regard as grounds for asserting the sentence. Dummett does indeed make this question-begging assumption in his presentations of the argument. For example, in 'Truth' Dummett makes the following remark:

His [the anti-realist's] ground for rejecting B's [the realist's] argument is that if such a statement as 'Jones was brave' is true, it must be true in virtue of the sort of fact we have been taught to regard as justifying us in asserting it. (p.16; see also 'Realism', p.149)

But this assumption is not what primarily concerns me here. Rather I wish to consider in detail the way in which Dummett uses the equivalences between (6) and (8) and between (7) and (9) to infer from the fact that we may not be entitled to assert (10) the fact that we may not be entitled to assert (11). I schematize Dummett's view of the relations between sentences (6) and (9) below.

(6) Jones was brave



(8) If Jones had been in a dangerous situation he would have acted bravely

(7) Jones was not brave

(9) If Jones had been in a dangerous situation he would not have acted bravely

Complete lines connect equivalences and broken lines connect contradictories.

A query I wish to raise is whether (6) is genuinely equivalent to (8)

and (7) genuinely equivalent to (9). The problem is this: if the pairs

are equivalent, then (8) and (9) should be contradictory in the same way

as (6) and (7). But when (8) is false, (9) need not be true and vice versa.

For example, to say (8) is false is to deny that Jones would have necessarily acted bravely in a dangerous situation; but this does not amount to asserting that Jones would necessarily not have acted bravely in such a situation.

I claim that the true contradictions of (8) and (9) are:

(12) If Jones had been in a dangerous situation, he might not have acted bravely.

(13) If Jones had been in a dangerous situation, he might have acted bravely.

Since (8) and (9) fail to be contradictories and we know that (6) and (7)

are contradictories, the equivalence of (6) with (8) and the equivalence of

(7) with (9) fail to hold. Moreover, with the failure of these equivalences,

the equivalence of (10) with (11) must fail as well.

Sentences (10) and (11) are instances of the schemas $A \vee \neg A$ and $A \rightarrow B \vee$

$\underline{A} \rightarrow \underline{B}$.⁵ The first is, of course, the law of excluded middle and the second
is the law of conditional excluded middle.⁶ Dummett assumes that a realist

5. I use the symbolism ' $\dots \Box \rightarrow \dots$ ' for the following sentential contexts:
 If it $\left\{ \begin{array}{l} \text{were} \\ \text{had been} \end{array} \right\}$ the case that \dots , then it $\left\{ \begin{array}{l} \text{would be} \\ \text{have been} \end{array} \right\}$ the case that \dots

6. Robert Stalnaker gives it this name in 'A Theory of Conditionals', in Ernest Sosa (ed.), Causation and Conditionals, (Oxford: Oxford University Press, 1975), pp.163-179

interpretation of counterfactuals will involve accepting in all instances of the law of conditional excluded middle in the same way that a realist interpretation of categoricals involves accepting all instances of the law of excluded middle. I believe this assumption is mistaken. The realist must embrace the law of excluded middle but not the law of conditional excluded middle. In fact the law of conditional excluded middle is not a law at all: there are straightforward counterexamples to it which the realist can readily acknowledge.

These counterexamples fall into two categories. One category is of cases in which the antecedent A requires supplementation before it can determine either B or $\neg B$. For example, consider a familiar puzzle case: 'If Bizet and Verdi had been compatriots then Bizet would have been Italian or if Bizet and Verdi had been compatriots, then Bizet would not have been Italian'. I believe that this disjunction is false. The antecedent, as it stands, does not suffice to determine either that Bizet would have been Italian or that he would not have been Italian. There might, of course, be some factor which together with the antecedent would determine one consequent or the other: for example, the fact that Bizet's parents were more inclined to move to Italy than Verdi's parents were inclined to move to France. The other category is of cases in which we believe, on quantum-mechanical grounds or because some voluntary agent is involved, that nothing can determine either B or $\neg B$. In these cases, no addition to A, which does not, in conjunction with A, logically imply B or $\neg B$, suffices to determine one consequent or the other. The following is a case in question: 'If a light beam were to fall upon this atom, it would remain in its ground state, or if a light-beam were to fall upon this/it would assume a higher energy level'. On quantum-mechanical grounds, we know that this disjunction is false.⁷ (See 'Philosophical Basis', pp.244-245)

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7. David Lewis argues that if unrestricted validity were to be granted to the law of conditional excluded middle, then it would be impossible to distinguish the external negation of a counterfactual - $\neg(A \rightarrow B)$ - from its internal negation - $A \rightarrow \neg B$. Moreover, if one defines a 'might' counterfactual in terms of a 'would' counterfactual so that $A \rightarrow B$ if and only if $\neg(A \rightarrow \neg B)$, the indistinguishability of external and internal negations means that 'might' and 'would' counterfactuals are also indistinguishable. See Counterfactuals, (Oxford; Basil Blackwell, 1973) pp.79-80

A natural mistake might be to suppose that I am objecting to the law $\underline{A} \rightarrow \underline{B} \vee \underline{\neg B}$. But this law is in fact valid from a realist's point of view. (It, rather than $\underline{A} \rightarrow \underline{B} \vee \underline{A} \rightarrow \underline{\neg B}$, should be called the law of conditional excluded middle.) It is indeed true that if Bizet and Verdi were compatriots, Bizet would or would not have been Italian. It is also true that if a light-beam were to fall upon this atom, it would remain in its ground state or assume a higher frequency level. In an adequate logic for counterfactuals, $\underline{A} \rightarrow \underline{B} \vee \underline{A} \rightarrow \underline{\neg B}$ should imply $\underline{A} \rightarrow \underline{B} \vee \underline{\neg B}$ but not vice versa.⁸ So a realist can commit himself to the latter without committing himself to the former.

Let us return to the particular instances of $\underline{A} \vee \underline{\neg A}$ and $\underline{A} \rightarrow \underline{B} \vee \underline{A} \rightarrow \underline{\neg B}$ which Dummett discusses. In the article 'Realism' Dummett introduces the case of 'Jones was brave' by saying that he will view the attribution of character-traits to people under certain idealizations.

For the sake of this example, I assume that there is no vagueness in the characterization of human actions - for instance, that no disagreement can arise over the application to a particular act of the predicate 'brave'. I shall also ignore the fact that the performance of a single act possessing a certain quality is not sufficient for the ascription of the corresponding character-trait to the agent - e.g. that the performance of a single brave act is not enough to guarantee that we can say without qualification that the agent is a brave man: I thus in effect assume that no one ever acts out of character, and that no one's character ever changes. ('Realism', p.148)

It is only in view of these idealizations that Dummett can assert that 'Jones was brave' has the same content as the counterfactual 'If Jones had been in a dangerous situation, he would have acted bravely'. If one allows, as seems realistic, that people sometimes act out of character and that a single performance of an action does not suffice for the attribution of a

8. This is the case in Lewis' theory.

character-trait, then one can say only that the categorical has the same content as 'If Jones had been in a number of dangerous situations, he would probably have acted bravely'.

In his subsequent discussion Dummett dispenses with these idealizations. He argues that there might well be situations in which neither disjunct of (10) is assertible and that, consequently, (10) is not assertible in these situations. He presents his argument as though it were an argument against a realist interpretation of counterfactuals. But, as I have argued, a realist need not accept every instance of $A \rightarrow B \vee A \rightarrow \neg B$. One can see his objection to (10) as falling into the second category of objections to this general scheme: because a human agent is involved, the processes involved in character manifestation are inherently non-deterministic.

But the disjunction (10) should be assertible under the idealizations which Dummett makes at the beginning of this discussion. Clearly to stipulate the idealization that a person always acts in keeping with his character is to rule out the possibility that when a person is brave, he might be in a situation which calls for bravery but fails to act bravely and the possibility that when a person is not brave, he might be in such a situation and acts bravely. This idealization, then, simply amounts to a denial that the processes involved in character-manifestation are inherently non-deterministic. So no objection falling into the second category, considered earlier, can be lodged against (10), under the idealization Dummett makes. Any objection to (10) falling into the first category, namely that the antecedent of the counterfactual is underspecified, can be set aside as arising from an accidental feature of the example, which may be easily repaired.

Let me sum up the results of this discussion. Dummett believes that a realistic interpretation of counterfactuals is to be identified with the thesis that the law of conditional excluded middle is valid for all counterfactuals in the same way that a realist interpretation of categoricals can be identified with the thesis that the law of excluded middle is valid for all categoricals. I have argued that this belief is mistaken: a realist can object to the inappropriately named law of conditional excluded middle on the grounds that there are straightforward counterexamples to it which have nothing to do with realism. Moreover, I have argued that Dummett's argument against the law of excluded middle, which makes use of the invalidity of the law of conditional excluded middle, only works through an unclarity about the status of certain idealizations. The argument proceeds by identifying (6) with (8) and (7) with (9) and then denying that (11) holds on the grounds that (10) does not. But Dummett can make the identifications of (6) with (8) and (7) with (9) only under certain idealizations, in which case (10) is true and so is (11). But if these idealizations do not hold, the identifications cannot be made and the apparent falsity of (10) in these circumstances does not affect the truth of (11).

3 The Defeasibility of Evidence

The importance in Dummett's work of the notion of reduction derives to a great extent from the fact that the notion of a sentence's being barely true is defined in terms of reduction. A simplified version of the definition Dummett gives is this:

- (14) A sentence is barely true if and only if it is true and it does not reduce to any other sentence. ('Theory of Meaning II', p.94)

The parallel notion of a sentence's being reducibly true can be defined in a similar fashion:

- (15) A sentence is reducibly true if and only if it is true and it does reduce to another sentence.

The notion of a sentence being barely true plays a more prominent role in Dummett's discussions of local anti-realisms than the notion of a sentence being reducibly true. The reason for this is simply that Dummett believes that the disputed sentences of most local anti-realisms do not reduce to other sentences. The only instance of a reductionist form of anti-realism which Dummett countenances is anti-realism about character-traits. In the first section I discussed how Dummett's imposition of clause (2), or rather clause (4), as a condition on reduction rules out the possibility of reductionism for practically all local anti-realisms. Thus, for Dummett, most disputed sentences, when true, are barely true.

Besides the class of disputed sentences for which no reductive theses hold, there is another class of sentences which can be barely true. This is the

class of reductive sentences. (I am here assuming that the reductive sentences in^a dispute are not themselves the subjects of reductive theses; Dummett never says anything for or against this assumption.) These reductive sentences can be barely true because, when they are true, their truth does not consist in the truth of any other sentences.

Realism need not be thought of as being inhospitable to the notion of a sentence's being barely true. In fact, given a suitable notion of reduction in terms of which it can be defined, the notion of a sentence's being barely true is very significant for the realist. Its significance lies in the fact that the correspondence account of truth applies directly only to sentences which are barely true. The heart of the correspondence account is that a sentence is true in virtue of its correspondence with some fact, where this fact may be recognition-transcendent⁹ in the sense that we cannot effectively recognize it. The correspondence account applies only indirectly to reducibly true sentences: such sentences are true in virtue of a correspondence between the sentence to which they reduce and possibly recognition-transcendent facts.

Dummett tries to retain some of the spirit of the correspondence account by endorsing a principle he labels principle C. It states that if a sentence is true, there must be something in virtue of which it is true. ('Theory of Meaning II', p.89) It would be misleading, however, to think that an endorsement of this principle amounts to anything like an endorsement of the full-blooded correspondence picture of truth. For one, Dummett's construal

9. A fact, in the terminology I shall adopt, is a state of affairs which actually obtains; so to recognize a fact is just to recognize that a state of affairs obtains.

of reduction makes it possible for an undecidable sentence to be barely true. (Note that while an undecidable sentence belonging to a disputed class may not reduce, in Dummett's sense, to other sentences, it must quasi-reduce, in my sense, to other sentences.) For example, Dummett believes that mathematical sentences do not reduce to any other type of sentence; and so, when an undecidable mathematical sentence is true, it must be barely true. But it would not be in harmony with the spirit of Dummett's anti-realism to suppose, in conformity with the full-blooded correspondence account, that the truth of the undecidable mathematical sentence, in being barely true, must consist in its direct correspondence with some recognition-transcendent fact.

One way in which Dummett presents the dispute between realist and anti-realist over the applicability of the principle of bivalence to an undecidable sentence is by supposing that they both accept principle C. ('Postscript to Truth', p.23) Dummett says that the anti-realist uses the principle to infer that the undecidable sentence is not necessarily either true or false, while the realist uses it to infer that what makes the sentence either true or false is not effectively recognizable. What Dummett does not say is that the realist and the anti-realist can use the principle to infer these different conclusions only because they presuppose that the quantifier 'something' in the principle ranges over different domains: the anti-realist presupposes that the quantifier ranges only over effectively recognizable facts while the realist presupposes that it ranges over facts some of which are recognition-transcendent.

Dummett tries to restrict the domain of the quantifier in principle C to effectively recognizable facts by appealing to another principle which he labels principle K. It states that if a sentence is true, it must be

in principle possible to know that it is true. ('Theory of Meaning II', p.99) Dummett says that principle K is related to Principle C in the following way: that in virtue of which a sentence is true is the same as what is known in knowing that the sentence is true because both consist, in the terminology I have adopted, in some fact. As regards the domain of the quantifier in principle C, Dummett seems to entertain some train of thought like this: recognition-transcendent facts cannot be known and so they cannot constitute that in virtue of which a sentence is true, or, in other words, they cannot belong to the domain of the quantifier in principle C. Effectively recognizable facts, on the other hand, can be known and so they can legitimately belong to the domain of the quantifier. (See 'Theory of Meaning II', pp.98-101; Frege, pp.464-468; 'Postscript to Truth', p 23-24)

This train of thought is so unconvincing that the fact that Dummett seems to entertain it stands in need of explanation. The explanation is that Dummett interprets the expression 'know' in his discussions of principle K to mean 'effectively recognize' and on this interpretation the train of thought, outlined above, is more intelligible, even if no more convincing. The fact that Dummett interprets 'know' in this way is especially clear when he attempts to characterize the way in which he thinks a realist must interpret principle K. Dummett says in a number of places that while the anti-realist can interpret 'in principle possible' in principle K to mean 'in principle possible for us', the realist must interpret it to mean 'in principle possible for some hypothetical being whose recognitional abilities exceed our own'. (See passages referred to in last paragraph)

But there just is no reason for believing, as Dummett does, that the realist must appeal to the conception of a hypothetical being whose recognitional

abilities transcend to our own to justify his adherence to principle K. There are other models for how we may know that a sentence is true apart from the model of effectively recognizing the fact which makes the sentence true: we may know that a sentence is true by deducing it from general laws or on the basis of an inductive argument. It is only on the assumption, which the realist will hardly concede, that 'in principle possible to know' in principle K must be interpreted to mean 'in principle possible for us to recognize effectively' that the realist must appeal to the conception of a superhuman cognizer in order to justify his acceptance of the principle K.

Thus the realist has some grounds for objecting to the way in which Dummett tries to restrict the domain of the quantifier in principle C by interpreting principle K in a question-begging way. Nonetheless I shall not pursue this matter any further. What is significant in the preceding discussion is the fact that Dummett does indeed restrict the domain of the quantifier in principle to effectively recognizable facts. This fact is significant because it confirms my conjecture in the last section that all undecidable sentences belonging to disputed classes quasi-reduce for the anti-realist to certain decidable sentences. The undecidable sentences belonging to disputed classes quasi-reduce to decidable sentences in the sense that no facts make such undecidable sentences true over and above the effectively recognizable facts which make their corresponding decidable sentences true; or, in other words, if such an undecidable sentence is true, it is true in virtue of the effectively recognizable facts which make its corresponding decidable sentence true. This is exactly how things should be if the quantifier in principle C is interpreted as ranging over effectively recognizable facts. So I have examined two lines of thought, one in the first section and the other in this section, which converge in the anti-realist thesis: when an undecidable sentence belonging to

a disputed class is true, it is true, to put it in the material mode, in virtue of certain effectively recognizable facts or, to put it in the formal mode, in virtue of the truth of a (probably complex) decidable sentence.

Now I wish to consider a realist objection to the anti-realist thesis which the two lines of thought converge in. From the definition of quasi-reduction one learns that part of what it means to assert the anti-realist thesis that an undecidable sentence A is true in virtue of the truth of a decidable sentence A' is that 'A' is true if and only if 'A' is true. Given that the anti-realist can accept the equivalence principle, this amounts to saying A if and only if A'. The realist objection which I wish to make is directed at the anti-realist's claim that, for every undecidable sentence A belonging to a disputed class we can find a (probably complex) decidable sentence A' such that A if and only if A'.

Let us consider a particular case. Let A be the sentence 'John is in pain' and let A' be a decidable sentence expressing the different types of broadly behavioural evidence which prima facie constitute grounds for asserting A. The realist objection is that, where A and A' are described, there is every reason for believing that the conditionals linking them are false: for it may be the case that John is in pain but his behaviour does not make A' true and, conversely, it may be the case that John's behaviour makes A' true but John is not in pain. Even though A' might be a complex description of the kind of evidence which prima facie justifies us in asserting 'John is in pain', the possibility that John is a spartan or a shammer makes the conditionals linking A and A' false. Moreover this is not a peculiarity of the example chosen. Any empirically

undecidable sentence, whatever disputed class it belongs to, cannot ever be conclusively verified: the claim 'I have conclusively verified the sentence' for such a sentence always betrays a misunderstanding of the sentence.¹⁰ Thus any evidence which prima facie constitutes grounds for asserting an empirically undecidable sentence may subsequently be defeated. If A is an arbitrary empirically undecidable sentence and A' is a sentence expressing the existence of evidence which prima facie justifies the assertion of A the conditionals linking A and A' will be false.

This realist objection will hold no matter how complicated the anti-realist cares to make A'. The anti-realist may attempt to allow for the defeasibility of evidence for an undecidable sentence A by saying that A' must express not only the different types which prima facie justify the assertion of A but also the different types of defeaters for such evidence. The anti-realist might naturally represent A' in the form a disjunction of the following kind:

$$(16) (\underline{B}_0 \& \neg \underline{B}'_0) \vee (\underline{B}_1 \& \neg \underline{B}'_1) \vee \dots \vee (\underline{B}_n \& \neg \underline{B}'_n)$$

where $\underline{B}_0, \underline{B}_1, \dots, \underline{B}_n$ are finitely complex sentences which describe the different types of evidence which prima facie justify the assertion of A and $\underline{B}'_0, \underline{B}'_1, \dots, \underline{B}'_n$ express the different types of defeaters associated with the types of evidence. Even granting the anti-realist this degree of complexity to A', the realist can press his objection again. Suppose A' is true because the disjunct $\underline{B}_0 \& \neg \underline{B}'_0$ holds; the realist argues that we can still conceive of circumstances in which both conditionals

10. Crispin Wright in fact characterizes the empirically undecidable sentences in terms of the defeasibility of the evidence for them; see 'Strawson on Anti-Realism', Synthese, 40 (1979), p.286

in 'A if and only if B₀ and \neg B₀' are false, for the simple reason that B₀ & \neg B₀ expresses a type of evidence which is itself defeasible.

I do not deny that the anti-realist has something to say to this objection. The anti-realist may point out that, when the conditional is read in the way that he favours, it is not clear that he must accept the biconditionals of the form 'A if and only if A' where A is an empirically undecidable sentence and A' an empirically decidable sentence. A suitable generalization of the intuitionist's interpretation of the conditional is the following:

- (17) A state of information justifies the assertion of 'If A then B' just in case we can recognize that any enlargement of it into a state justifying the assertion of A would eo ipso transform it into a state justifying the assertion of B.¹¹

In the case that was considered earlier, it was supposed that A is the sentence 'John is in pain' and A' is some finitely complex sentence describing the different types of evidence for A. The realist rejected 'If A' then A' because he imagined a case in which the discovery that John was shamming defeated the evidence described by A'. Now the anti-realist can reject the conditional on the same grounds: for the possibility that we should learn that the evidence described by A' is defeated means that not every enlargement of the given state of information into a state justifying the assertion of A' would transform it into a state justifying the assertion of A. A similar argument can be given to show that the anti-realist can reject the conditional 'If A then A' for exactly the same reasons as the realist.

A natural way of construing this anti-realist reply is to see it as implying that A', which gives the non-classical truth-condition of A, must be even more complex than anticipated: it must be even more complex than (16)

11. Taken from Crispin Wright, 'Truth Conditions and Criteria', Proceedings of the Aristotelian Society, Suppl. Vol. 1976, p.236

It might appear that the anti-realist could give expression to the indefinite defeasibility of evidence for the undecidable sentence A by allowing A' to have the form of a disjunction in which each disjunct is infinitely long: on this view each disjunct would have the form:

$$(B) \quad ((\underbrace{B}_0 \& \underbrace{\neg B'}_0) \& \underbrace{\neg B''}_0) \& \underbrace{\neg B'''_0} \dots$$

where \underbrace{B}_0 describes the defeaters of the evidence described by B , $\underbrace{B'}_0$ describes the defeaters of the evidence described by $\underbrace{B \& \neg B'}_0$, and $\underbrace{B''}_0$ describes the defeaters of the evidence described by $(\underbrace{B \& \neg B'}_0) \& \underbrace{\neg B''}_0$ etc. If A' were to be true in virtue of the truth of a disjunct of this form, A' would express the fact that there is evidence which justifies the assertion of A and there is nothing which undermines this evidence. In these circumstances it would be plausible for the anti-realist to think that the truth of A' entails, and is entailed by, the truth of A .

However natural it might be to state the truth-condition of an undecidable sentence in this way, the anti-realist cannot endorse such a statement. For this would be to say that an undecidable sentence is true in virtue of the infinite number of facts which make one of the disjuncts true. The anti-realist is committed to the thesis that one must be able to recognize effectively what makes a sentence true, but one cannot effectively recognize an infinite number of facts. One can express the anti-realist's objection to this construal of his reply by saying that for him the reductive sentence which gives the truth-condition of an undecidable sentence, that is, the sentence to which the undecidable sentence quasi-reduces, must be decidable; but a disjunction each disjunct of which is infinitely long is not decidable.

If this natural way of interpreting the anti-realist's reply must be ruled out, how exactly are we to understand the kind of truth-condition which the anti-realist assigns to an empirically undecidable sentence? It appears

that an acknowledgement of the defeasibility of the evidence for such a sentence rules out stating the truth-condition in a finite form and a recognition of the self-imposed limitations of anti-realism rules out stating it in an infinite form. If the anti-realist has no way of explaining the truth-condition which he assigns to an empirically undecidable sentence, what right does he have to assume that his conception of truth for such sentences is intelligible at all?

Up until recently, Dummett never addressed these questions. The reason for this is that in practically all his past work he never acknowledges the defeasibility of evidence for empirically undecidable sentences: when he speaks of the conditions which verify an undecidable sentence, he assumes that the conditions conclusively verify the sentence. (For example, see Frege, p.467; 'Theory of Meaning II', p.111; the only exception to this generalization is the article 'Realism', pp.163-164) Dummett's failure to acknowledge the defeasibility of this type of evidence is the result of his assimilating empirically undecidable sentences to mathematically undecidable sentences for which the evidence, namely our possession of a proof, is never defeasible. In the Preface to Truth and Other Enigmas, however, he acknowledges that the evidence for an empirically undecidable sentence may fall short of being conclusive. (p.xxxviii) This acknowledgement is accompanied by a radical deviation from the pattern of his previous interpretations of local anti-realisms: according to this pattern each local anti-realism involved the claim that the only admissible notion of truth for the disputed sentences is that which is equated with the existence of evidence for the sentences. He says in the Preface that he now believes that it is a mistake to present anti-realism about mental states, events, and processes (and also perhaps anti-realism about the past) as making this claim. He says that he adopts a Wittgensteinian position

position with regard to mental states etc and that presenting this position as conforming to the pattern above would make it indistinguishable from behaviourism, which he takes to be incorrect.

Namely, it seems in many cases apt to characterize a dispute between one who accepts and one who rejects a realistic interpretation of some class of statements as being over what, in general makes a statement of that class true, when it is true, as over that in virtue of which such a statement is true. In the present case, I must, according to the realist view, say that what renders true a statement such as 'John is in pain', considered as a statement in my language, is its being with John as it is with me when I am in pain. For the behaviourist, on the other hand, what makes the statement true is the pain-behaviour evinced by John. And, when the question is framed in this way, we cannot see a middle position: since Wittgenstein rejects the realist's answer, we cannot see what it can be that, for him, renders an ascription of pain true, if it is not the pain-behaviour. ('Preface', pp.xxxiii-iv)

Dummett makes it clear that he is not denying that the sentence 'John is in pain' has a truth-condition. ('Preface', p.xxxvi) But he claims that the truth-condition can be expressed only in a trivial way: that is, the truth-condition can be expressed only as '"John is in pain" is true if and only if John is in pain'. He says that where a sentence is not the subject of a reductive thesis, only a trivial answer can be given to the question 'In virtue of what is the sentence true, when it is true?' But even when we can give only a trivial answer to this question, he adds, it is still necessary that a non-trivial explanation should be possible of a speaker's knowledge of the sentence's truth-condition. He describes what the knowledge of the non-classical truth-condition of 'John is in pain' entails:

Now, for a statement like 'John is in pain', this involves a grasp of the connection between pain and pain-behaviour. That does not entail the behaviourist's conclusion that it is the pain-behaviour in which the pain consists, which renders true the ascription of pain: that identification is sufficiently refuted by the possibilities of shamming and of inhibiting the instinctive response. To understand statement like 'John is in pain', we must know how they are used. That involves knowing that the pain-behaviour, or the presence of an ordinarily painful stimulus, is normally sufficient ground for an ascription of pain, but one that can be rebutted, in the former case by the clues that betray the shammer or by subsequent disclaimer; learning the symptoms of inhibiting the natural manifestation of pain, and the limits beyond which this is impossible; knowing the usual

connection between pain and bodily conditions, and the sort of cases in which the connection may be broken; and so on. To know these and similar things is, on Wittgenstein's account, just as to know what 'John is in pain' means; and, for one who knows this, there need be no more informative answer to the question what makes that statement true than, 'John's being in pain'. ('Preface', pp. xxxiv-v)

These remarks about 'John is in pain' become clearer in the light of comments Dummett makes in 'What is a Theory of Meaning? II'. In the article, Dummett says that the theory of reference, employing a truth-theory in which the metalanguage is an extension of the object-language, must assign a trivial T-sentence to a sentence which can be barely true and a non-trivial T-sentence to a sentence which can be reducibly true.¹² (A trivial T-sentence in the kind of truth-theory described is one which has the form 'S is true if and only if p' where S is the structural-description of p.) When a sentence has a trivial T-sentence, Dummett says, the explanation of what it is for a speaker to know its truth-condition must fall wholly to the theory of sense. ('Theory of Meaning II', p.95) As remarked in Chapter Two, the theory of sense correlates T-sentences with practical capacities possessed by speakers. Dummett mentions only two kinds of practical capacities: recognitional capacities consisting in abilities to recognize effectively when sentences' truth-conditions obtain and verbal capacities consisting in abilities to restate sentences' truth-conditions by means of different sentences. Now the T-sentence for any given sentence merely states what is known by

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- 12.. This needs qualification. Dummett, in fact, says that if there is an obstacle to translating a reducibly true sentence into a reductive sentence, then there may be an obstacle to constructing a non-trivial T-sentence for the reducibly true sentence. ('Theory of Meaning II', p.95) But the only obstacle which Dummett mentions to translating a reducibly true sentence into a reductive sentence is the possibility that the reductive sentence is infinitely long ('Theory of Meaning II', p.94) Since this is only a possibility for a realist type of reduction, we can ignore Dummett's reservation that a reducibly true sentence may have a trivial T-sentence, when we consider sentences which are reducibly true according to an anti-realist's understanding of reduction.

speaker who understands the sentence; it is only through the exercise of the practical capacity which the theory of sense associates with the T-sentence that the speaker can manifest his understanding of the sentence.

But whether the T-sentence corresponding to a given sentence is trivial or not, in reflecting whether the sentence can be barely true or reducibly true, apparently determines, in Dummett's eyes, the appropriate type of practical capacity through the exercise of which a speaker can manifest his understanding of the sentence. For Dummett seems to suppose that the fact that a sentence has a trivial T-sentence means, at least in an anti-realist truth theory, that speakers must manifest their knowledge of its truth-condition through exercising their recognitional capacities, while the fact that a sentence has a non-trivial T-sentence means, in an anti-realist truth-theory, that speakers must manifest their knowledge of its truth-condition through exercising their verbal abilities. ('Theory of Meaning II', p.95 and p.98)

This confirms my conjecture in the first section that Dummett believes that we have implicit knowledge of the truth-conditions of sentences which can be barely true and explicit knowledge of the truth-conditions of sentences which can be reducibly true and that the partial ordering of sentences, described in §4 of Chapter Two, in determining whether we have implicit or explicit knowledge of a sentence's truth-condition thereby determines whether the sentence can be barely true or reducibly true.

Against the background of this summary of Dummett's views, I think that I can sketch the strategy he adopts in countering the objection I raised a short while ago, the objection that the anti-realist cannot explain the kind of non-classical truth condition he assigns to empirically undecidable

sentences if these truth-conditions are to make allowance for the defeasibility of evidence. The first step of the strategy is to point out that all empirically undecidable sentences that are in dispute between realist and anti-realist¹³ are barely true, when true at all. Since this is the case, they have non-classical truth-conditions which can be stated only in a trivial way. For this reason the anti-realist cannot informatively state this conception of these non-classical truth-conditions in a way which distinguishes them from the realist's conception. The second step of the strategy is to deny the consequence which the realist draws from this fact, namely, that non-classical truth-conditions are either unintelligible or indistinguishable from classical truth-conditions. Dummett may argue that non-classical truth-conditions are intelligible but an understanding of these conditions is implicit rather than explicit. A speaker can manifest his understanding of the non-classical truth-condition of an empirically undecidable sentence by exercising his recognitional capacity: he can effectively recognize when the truth-condition obtains or fails to obtain. Moreover, such a non-classical truth-condition is distinguishable, Dummett can argue, from a classical truth-condition in that it can be embedded in a theory of sense which correlates T-sentences stating truth-conditions with practical capacities, while the classical truth-condition cannot be so embedded.

I believe that some strategy of this kind lies behind Dummett's remarks in the Preface to Truth and Other Enigmas. But the strategy does not succeed,

13 . Dummett allows that sentences about character-traits are not barely true. But then he says that these sentences could hardly be in dispute because any philosophically sophisticated person will reject realism about character-traits! ('Realism', p.150)

in my opinion, in rebutting the realist's objection. Both steps of the strategy involve mistaken assumptions or premisses.

I shall begin by considering the first step of the strategy. This step involves claiming that all the contestable undecidable sentences are barely true, when true at all. To go back to the discussion of the first section: Dummett can make this claim because he includes some such clause as (2) in his construal of reduction. For example, the sentence 'John is in pain' cannot reduce, in Dummett's view, to sentences such as 'John says that he is in pain' which describe the existence of evidence for it: for the sentence 'John says that he is in pain' is not intelligible independently of 'John is in pain'. I argued in the first section that the definition of reduction which I attributed to Dummett is mistaken, in particular, because of its reliance on a certain partial ordering of sentences and, in general, because of the irrelevant semantic considerations which enter into its formulation.

I turn now to the second step of the strategy. Dummett is mistaken in believing that it is possible to distinguish non-classical from classical truth-conditions by saying that the former but not the latter are embeddable in a theory of sense of the kind he envisages. As I argued in §§3 and 5 of Chapter Two, if one includes speakers' inferential abilities among the practical capacities of the theory of sense, there is every reason to believe that classical truth-conditions are embeddable in the theory of sense: a speaker can manifest his understanding of the classical truth-condition of an empirically undecidable sentence by accepting/classically valid inferences involving the sentences. Dummett's argument that a speaker cannot manifest knowledge of the classical truth-condition of an undecidable sentence relies upon restricting the practical capacities suitable for manifesting such knowledge to recognitional abilities. Of course, the realist objects

to this restriction as question-begging. Even from an anti-realist perspective, the restriction is permissible only if Dummett is correct in assuming that all the contestable undecidable sentences can be barely true, that sentences which can be barely true have trivial truth-conditions, and that sentences with trivial truth-conditions require the exercise of recognitional capacities as the appropriate manifestation-procedure. I believe that even an anti-realist may find exception to the first of these assumptions.

In order to make good the claim that non-classical truth-conditions are intelligible, Dummett must say, according to the argument I have attributed to him, that even though we cannot informatively state these truth-conditions, we can effectively recognize when they obtain or fail to obtain. But if Dummett must really say something like this, it is difficult to refrain from asking why we cannot informatively state the truth-conditions. Surely, one has only to execute the appropriate effective procedure on a given occasion on which a truth-condition obtains and one will be in a position, not only to recognize that the truth-condition obtains, but also to describe it informatively. But if it is possible to describe the truth-condition in a non-trivial way, then the condition, in being effectively recognizable, must be expressible by a decidable sentence. Moreover, since the decidable sentence is supposed to give the truth-condition of the undecidable sentence, it should be possible to frame a biconditional stating that the undecidable sentence is true if and only if the decidable sentence is true. But now we are back to the problem of how the anti-realist can reconcile his acceptance of such biconditionals, in the case of empirically undecidable sentences, with the defeasibility of the evidence for such sentences.

Now the anti-realist may refuse to fall into this trap of stating the truth-condition in a non-trivial way. He must concede that a speaker must be able to recognize effectively when the non-classical truth-condition of an empirically undecidable sentence like 'John is in pain' obtains or fails to obtain. But he may deny that when a speaker is in a position to recognize that the non-classical truth-condition of 'John is in pain' obtains, he is thereby in a position to describe the condition in an informative way: the anti-realist may say that what makes the sentence true on the given occasion is simply John's being in pain and refuse to state it any other way.

It seems to me that this is a possible position for the anti-realist to take, in fact one which is often taken. But it is essentially obscurantist. I believe it is a legitimate demand to make of the anti-realist that he explain, in terms which are intelligible, even if not acceptable, to the realist, how he conceives of the various types of conditions which make sentences true. In the article 'The Philosophical Basis of Intuitionistic Logic' Dummett himself concedes the legitimacy of this demand in the case of mathematical sentences.

If the intuitionistic notion of truth for mathematical statements can be explained only by a Tarski-type truth-definition which takes for granted the meanings of the intuitionistic logical constants, then the intuitionist notion of truth, and hence of meaning, cannot be so much as conveyed to anyone who does not accept it already, and no debate between intuitionists and platonists is possible, because they cannot communicate with one another. It is therefore wholly legitimate, and, indeed, essential, to frame the condition for the intuitionistic truth of a mathematical sentence in terms which are intelligible to a platonist and do not beg any questions, because they employ only notions which are not in dispute. ('Philosophical Basis', pp.238-239)

In the subsequent discussion Dummett settles on a characterization of truth for mathematical sentences. It is a variant of the characterization discussed in §3 of the last chapter: namely, a mathematical sentence is true just in case we possess an effective procedure for obtaining a canonical proof of it. ('Philosophical Basis', pp.243-244) In the article 'The Justification

of Deduction' Dummett generalizes this characterization for all sentences. A rough statement of this generalization is: a sentence is true just in case we possess an effective procedure for obtaining a direct verification of it.'

These characterizations constitute a significant step by Dummett towards an explanation of how he conceives of the non-classical truth-conditions of mathematical and non-mathematical sentences. A further step towards such an explanation would be to say how these characterizations apply to particular cases. For a mathematical sentence, and in particular, a sentence of first-order logic, Dummett can explain what the canonical proof looks like and what constitutes an effective procedure for obtaining such a proof. For an empirical sentence, on the other hand, there will be difficulties, which I discussed in the last chapter, in explaining the distinction between the direct and the indirect verifications of an individual sentences. Regardless of how Dummett chooses to handle these difficulties, he must still face the opposition of our intuitions when he tries to say that an empirically undecidable sentence is true when and only when we possess evidence for it of a certain direct kind. These intuitions stem, as I have emphasized, from our recognition that any evidence for sentences of this kind is necessarily defeasible.

I think it is appropriate at this point to put the discussion of this section in perspective. In the first part of the section I argued that Dummett's remarks about principles C and K make it clear that he thinks, or at least, thought, that all undecidable sentences belonging to disputed classes are true in virtue of effectively recognizable facts, or in other words, all such sentences quasi-reduce to decidable sentences.

Then I presented a realist objection to this line of thought centering around the fact that the evidence for empirically undecidable sentences is defeasible. The objection went that it is impossible for a decidable sentence A' to state the non-classical truth-condition of an empirically undecidable sentence A if it is to make allowance for the defeasibility of evidence for A.

On the assumption that the anti-realist would want to acknowledge the defeasibility of evidence, I then registered a new objection to anti-realism: since the anti-realist cannot state in either a finite or an infinite form the non-classical truth-condition of an empirically undecidable sentence, he cannot explain his conception of truth for such sentences.

I then outlined a strategy which Dummett does, or could, develop to counter this new objection. The strategy involved saying that the non-classical truth-conditions of all the contestable empirically undecidable sentences can be stated only in a trivial way but that these truth-conditions are intelligible because speakers can manifest their understanding of them by effectively recognizing when they obtain.

I took exception to this strategy on a number of grounds. One was that the claim that all contestable empirically undecidable sentences can have only trivially statable non-classical truth-conditions rests on false assumptions about reduction. Another ground was that it seems plausible to say that when a speaker recognizes, on a given occasion, that the non-classical truth-condition of an empirically undecidable sentence obtains, he should be able to describe it in a non-trivial way. If the anti-realist agrees that this is a possibility, then he is faced again with the problem of reconciling the non-trivial statement of the sentence's truth-condition with the defeasibility of evidence for the sentence. If, on the other hand, the anti-realist says

that this is not a possibility, he is refusing to meet the demand, the legitimacy of which Dummett concedes in the mathematical case, that he explain, in terms which are intelligible to the realist and do not beg any questions, his conception of non-classical truth-conditions.

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